ESSAYS ON ACCOUNTABILITY AND SERVICE DELIVERY IN EDUCATION AND HEALTHCARE IN SOUTH AFRICA

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March 2021

DECLARATION

By submitting this dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously – in its entirety or in part – submitted it for obtaining any qualification.

Notwithstanding the above, the data presented in Chapters 2 and 3 was obtained in a research project carried out by the Health Group of Research on Socio-Economic Policy (ReSEP) in the Economics Department, Stellenbosch University. I played a leading role in the design of the data collection for patient exit interviews. I also participated in the training of standardised patients and fieldworkers for exit interviews for data collection in both provinces, as well as assisting with the management of data collection in the Eastern Cape.

The data presented in Chapter 4 was obtained in my own education research project in the Eastern Cape. I played a leading role in the design of data collection instruments for school principal and teacher interviews. I also spearheaded the data collection process with the help of two research assistants.

This dissertation includes one non-reviewed publication. The conceptualization, development and writing of this working paper was principally my responsibility and is included in the dissertation indicating the nature and extent of my contribution. The publication of this working paper does not infringe upon my right to use it in this dissertation or to publish the completed dissertation via Stellenbosch University's SunScholar portal. This publication is listed in full below:

Chapter 4:

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DECLARATION WITH REGARD TO CO-AUTHORING:

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With regard to Chapter 4 the nature and scope of my contribution were as follows:

Nature of contribution	**Extent of contribution (%)**
Conceived and designed the study; analysed and interpreted the data; wrote the paper, read, edited and approved the paper	100 %

ABSTRACT

South Africa's public service is characterised by poor quality of services and a weak record of accountability and service delivery. Despite high investment of resources towards the poor, there has been no corresponding improvement in the quality of education enjoyed by the disadvantaged majority. In the health sector, South Africa has not managed to significantly improve health outcomes despite sizeable resource shifts in health expenditure since 1994. Most health indicators are at a lower level than other middle- and even low-income countries whose health expenditures are substantially lower than South Africa's.

This dissertation contains three chapters on the principal-agent problem and accountability in health and education, with a focus on primary healthcare facilities and primary schools in South Africa. The contribution of the dissertation, through the analysis of novel data, is to consider how informational asymmetries in public services such as health and education conspire with low expectations from clients to act as binding constraints for delivery of high-quality primary healthcare and basic education services. It also presents evidence on how clients are able to distinguish between high- and low-quality services, providing a potential lever for quality improvement.

Chapter 2 considers the correlation of patient satisfaction with clinical quality of healthcare and what such correlation suggests about patients' ability to read signals about the quality of care. The findings reveal that non-activated or RPs (uninformed clients) provide higher ratings than activated or SPs (informed clients) about the quality of care at facilities. Although positive and significant correlations between reported satisfaction and protocol adherence were found, there were fewer correlations for the RPs: in other words, RPs' assessment of quality is less rooted in objective clinical measures than SPs who have been trained in assessing clinical quality of care.

Chapter 3 provides a comparison between SP and RPs on the role of the non-clinical dimensions of care in patient satisfaction. More positive experiences of the non-clinical factors were positively and significantly associated with an overall more satisfactory experience of health services for both the SPs and RPs. However, among SPs, the non-clinical dimensions of healthcare were more often strongly related to patient satisfaction with overall care, while fewer of these dimensions were significant among RPs.

Chapter 4 examines how school principals manage curriculum delivery and how their practices influence student performance. Many school principals and teachers indicated that curriculum

delivery monitoring was not conducted as expected. From this chapter's findings, both from principals' experiences and student performance data, it is clear that less informed parents and students are not able to effectively evaluate or monitor performance of their schools.

These findings have important implications for the design of bottom-up monitoring and social accountability policies. Such policies may be in the form of participatory engagement of the community, including explicitly delegating some authority over monitoring activities to community structures. Insights into clients' ability to discern quality provides potential to hold service providers accountable, given the right support from policymakers.

OPSOMMING

Publieke dienste in Suid-Afrika word deur lae kwaliteit dienste en swak verantwoordbaarheid- en dienslewering gekenmerk. Ten spyte van hoë besteding aan hulpbronne vir armes was daar nog geen ooreenstemmende verbetering in die gehalte van onderwys vir die minderbevoorregte meerderheid nie, en in die gesondheidsektor het Suid-Afrika nog nie daarin geslaag om gesondheidsuitkomste te verbeter nie, ten spyte van groot verskuiwings in gesondheidbesteding sedert 1994. Baie gesondheidsindikatore is swakker as in ander middel- en selfs lae-inkomste lande, ook lande met noemenswaardig laer gesondheidsbesteding as Suid-Afrika.

Hierdie tesis bevat drie hoofstukke oor die prinsipaal-agent probleem en verantwoordbaarheid in gesondheid en onderwys, met 'n fokus op primêre gesondheidsorg en skole in Suid-Afrika. Die tesis se hoofbydrae is die gebruik van nuwe, innoverende data om te ondersoek hoe gebrekkige inligting tesame met lae verwagtinge van die kliënte van hierdie dienste, saamspan om die lewering van hoë gehalte primêre gesondheid- en basiese onderwysdienste te beperk. Die tesis bevat ook bevindinge oor hoe kliënte tussen hoë- en lae-kwaliteit dienste onderskei en bied daardeur 'n moontlike roete vir kwaliteitsverbetering.

Hoofstuk 2 ondersoek die korrelasie tussen pasiënte se tevredenheid en kliniese kwaliteit van gesondheidsorg en wat so 'n korrelasie impliseer oor pasiënte se vermoëns om seine oor die gehalte van gesondheidsorg te interpreteer. Die bevindinge wys dat ongeaktiveerde of werklike pasiënte (WPs) (oningeligte kliënte) die kwaliteit van gesondheidsorg hoër aanslaan as geaktiveerde of gestandaardiseerde pasiënte (GPs) (ingeligte kliënte). Alhoewel daar positiewe en statisties beduidende korrelasies tussen gerapporteerde tevredenheid met dienste en die navolging van 'n kliniese protokol is, was daar minder van hierdie korrelasies vir WPs. Met ander woorde, WPs se beoordeling van kwaliteit is minder in objektiewe kliniese maatstawwe geanker as dié van GPs, wat opleiding in die beoordeling van die gehalte van kliniese gesondheidsorg onvang het.

Hoofstuk 3 vergelyk die rol wat nie-kliniese dimensies van gesondheidsorg tussen onderskeidelik werklike en geaktiveerde pasiënte se tevredenheid met gesondheidsorg speel. Meer positiewe ervarings van die nie-kliniese faktore word positief en statisties beduidend geassosieer met 'n meer bevredigende ervaring van gesondheidsdienste vir WPs en GPs. Vir GPs was die nie-kliniese dimensies van gesondheidsorg egter sterker verwant aan pasiënt-tevredenheid met algemene sorg, terwyl minder van hierdie dimensies statisties beduidend vir WPs was.

Hoofstuk 4 verken hoe skoolhoofde kurrikulumlewering bestuur en hoe hul praktyke leerderprestasie beïnvloed. Baie skoolhoofde en onderwysers het aangedui dat monitering van kurrikulumlewering nie volgens verwagtinge geskied nie. Uit hierdie hoofstuk se bevindinge, beide

uit skoolhoofde se ervaringe en data oor leerderprestasie, is dit duidelik dat minder ingeligte ouers en leerders nie die prestasie van hul skole effektief kan moniteer nie.

Hierdie bevindinge het belangrike implikasies vir die ontwerp van monitering vanaf voetsoolvlak en beleid rakende sosiale verantwoordbaarheid. Sulke beleid kan die vorm van deelnemende gemeenskapsmonitering aanneem, waar deel van die monitering van dienslewering eksplisiet aan gemeenskapstrukture gedelegeer kan word. Insigte oor kliënte se vermoë om hoë kwaliteit verskaffers te identifiseer hou die potensiaal in om diensleweraars verantwoordbaar te hou, veral met die regte ondersteuning van beleidmakers.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANA	Annual national assessment
ANOVA	Analysis of variance
ASER	Annual Status of Education Report
BP	Blood Pressure
CAPS	Curriculum and assessment policy statements
CC	Clinic Council
CHC	Community Health Centre
CHCC	Community Health Centre Council
CI	Confidence interval
CII	Composite infrastructural index
COSATU	Congress of South African Trade Unions
CPG	Clinical Practice Guidelines
CSI	Composite services index
DV	Dependent variable
ECDOE	Eastern Cape Department of Education
EDO	Education development officer
ELRC	Education Labour Relations Council
FET	Further Education and Training
FP	Family Planning
GHS	General Household Survey
HIV	Human Immunodeficiency Virus
HOD	Head of Department
HPCSA	Health Professions Council of South Africa
HR	Human resource
HREC	Humanities Research Ethics Committee
HRH	Human Resources for Health
HSR	Health system responsiveness

HSRC	Human Sciences Research Council
IDV	Independent variable
IEA	International Association for the Evaluation of Educational Achievement
IQMS	Integrated Quality Management System
ISCED	International Standards Classification of Education
LER	Learner-educator ratio
LMICs	Low- and middle income countries
LPM	Linear probability model
MCA	Multiple correspondence analysis
NDP	National Development Plan
NEEDU	National Education Evaluation and Development Unit
NEIMS	National Education Infrastructure Management System
NGOs	Non-governmental organisations
NPC	National Planning Commission
NSES	National School Effectiveness Study
OECD	Organisation for Economic Cooperation and Development
OHSC	Office of Health Standards Compliance
OLS	Ordinary least squares
OOP	Out of pocket payment
OR	Odds ratio
NAPTOSA	National Professional Teachers' Organisation of South Africa
PAT	Principal Agent Model
PCA	Principal Component Analysis
PEI	Patient Exit Interviews
PHC	Primary healthcare
PIRMS	Principal Instructional Management Rating Scale
PIRLS	Progress in International Reading Literacy Study
PREMS	Patient-reported experience measures
PSU	Population sampling unit
REQV	Relative Education Qualification Value
RP	Real Patient

RTT	Resource targeting table
SACE	South Africa Council of Educators
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SADTU	South African Democratic Teachers' Union
SANC	South African Nursing Council
SAOU	Suid-Afrikaanse Onderwyserunie
SASP	South African Standard for Principalship
SEI	Socioeconomic deprivation index
SES	Socioeconomic status
SGB	School Governing Body
SMT	School Management Team
SP	Standardised Patient
TB	Tuberculosis
TIMSS	Trends in International Math and Science Study
UHC	Universal health coverage
UNESCO	United Nations' Educational Scientific and Cultural Organisation
UNICEF	United Nations International Children's Emergency Fund
WDR	World Development Report
W.H.O	World Health Organisation

CHAPTER 1 : INTRODUCTION AND BACKGROUND

South Africa's public service sector is characterised by poor quality services and a weak record of accountability and service delivery. It is commonly accepted that measures should be in place to hold all spheres of government accountable for how resources are used. Officials from the national, provincial and local government levels are constitutionally obliged to utilise state resources for the provision of public services to all South African citizens. However, in most instances there is failure on the part of officials to convert public resources into public services of appropriate quality due to maladministration, incompetence and corruption (NEEDU, 2013; The World Bank, 2011; Remigius, 2017). This dissertation examines the principal-agent problem and accountability in health and education, with a focus on primary healthcare facilities and primary schools in South Africa. The opening sections of this chapter provide a global context to the accountability problem in public service delivery, focusing mainly on the quality of services offered in primary healthcare and basic education. This is then considered within the South African context with reference to these problems. Thereafter, a brief exposition of relevant theories which underpin the economics of health and education, and their limitations, is provided. This section is followed by an outline of the study's conceptual framework that is used in Chapter 5 to bring into context and reshape the findings of the dissertation with the purpose of making recommendations for future policy in South Africa. A discussion follows, based on the contribution of the dissertation within the field of health and education. The chapter concludes with a brief description of research objectives, data, methods and main findings of the dissertation.

1.1 BACKGROUND - ACCOUNTABILITY AND SERVICE DELIVERY IN PRIMARY HEALTHCARE AND BASIC EDUCATION

The prevalence of low-quality services in low- and middle-income countries (LMICs) was comprehensively detailed in the 2004 World Development Report (WDR) "Making Services Work for Poor People" (World Bank, 2003). The report provides details of the poor quality of education and health services provided to poor people in low-income countries. Features, such as high provider absenteeism, low time-on-task among those present at work (presenteeism[1]), and general poor performance, are widespread in both health and education (Banerjee, Banerji, Duflo, Glennester, and Khemani, 2008). For instance, research reveals that absenteeism rates among healthcare workers have been as high as 25 percent in Kenya (Muthama, Maina, Mwanje, and Kibua, 2008), while unannounced visits to health facilities exposed an absence rate of up to 35

[1] The impression of being at work but engrossed with activities that are not related to work (Kivimäki et al., 2001).

percent in Bangladesh, 37 percent in Uganda and 40 percent in India and Peru (Chaudhury, Hammer, Kremer, Muralidharan, and Rogers, 2006). The latter study records the absence rates among primary school teachers in India of 25 percent. Work by Wild and Foresti (2013) emphasizes how the combination of poor-quality provision and unequal coverage of essential services hampers poverty-reduction efforts and can perpetuate inequality. An anniversary conference of the 2004 WDR, which took place in 2014, revealed that many of the service delivery problems identified in 2004 still persisted.

Consequently, in many education systems throughout the world, very little learning takes place among children. Although millions of students spend several years in schools, a significant number of them have insufficient basic literacy and numeracy skills. More than 80 percent of students at the end of grade 2 in Ghana and Malawi could not read for meaning (World Bank Group, 2018). In the case of Peru, the proportion of students in the same grade who could not read for meaning was 50 percent (Crouch, 2006). In Nicaragua, when grade 3 students were assessed in 2011, a mere 50 percent could solve simple addition problems (World Bank Group, 2018). In the same country, test results in Mathematics and Spanish from the 2002 National Assessment revealed that from 60 to 90 percent of grade 3 and grade 6 students have only a basic grasp of their curriculum (Angel-Urdinola and Laguna, 2008). In India, only 12.5 percent of learners who start the fourth grade without knowing how to perform a simple mathematical problem, graduate the grade with sufficient mathematical competence (Pritchett, 2013). In Namibia, high percentages of dropout and repetition in the schooling system indicate low quality education provided by the education system (UNICEF Namibia, 2015). Simple subtraction activities in Pakistan could be correctly conducted by a mere 60 percent of grade 3 students from urban areas, while only 40 percent could be performed by rural students in the same grade (ASER Pakistan, 2015).

With regard to the quality of healthcare there has been remarkable improvement in some aspects across the world, such as cancer survival rates and reduction in deaths from cardiovascular diseases (Allemani et al., 2018; OECD, 2017). There has also been progress in the reduction of child mortality as manifested in the decline of under-five mortality[2], from 93 per 1 000 live births in 1990 to 41 per 1000 live births in 2016 (UNICEF, 2017). Nonetheless, there has been very slow and irregular progress in other healthcare areas. Globally, approximately 15 000 children below the age of five passed away daily in 2016. Although there has been an increase in the rate of skilled birth attendance by expectant mothers from 56 percent in 1990 to 73 percent in 2013, as a result of a rise in facility-based births, there are still many instances in which women and babies die or

[2] The likelihood of dying between birth and before 5 years of age (World Health Organisation, 2015).

become disabled during births due to suboptimal quality of healthcare. According to the World Health Organisation estimates, during childbirth approximately 303 000 mothers and 2.7 million infants die annually and a large number of them are affected by illnesses that could have been prevented (UNICEF, 2017; World Health Organization, 2018). Given the current global climate with the ongoing health pandemic of COVID-19, there is a likelihood that critical healthcare goals would not be achieved, especially in developing countries. Similar to the HIV/AIDS and Tuberculosis crisis, the COVID-19 pandemic will not only affect populations, but the healthcare sector as well, through a subsequent loss of healthcare practitioners due to illness, absenteeism, low staff morale, and exponential patient load (Delobelle, 2013).

In LMICs, there is a lack of improved water in almost 40 percent of healthcare facilities and nearly 20 percent of the facilities do not have adequate sanitation (World Health Organization, 2019). In most countries outside the OECD, about 50 percent of adults suffering from raised blood pressure[3] did not receive a hypertension diagnosis at healthcare facilities. The coverage of hypertension treatment is extremely low and ranges from a mere seven percent to 61 percent among individuals who have presented with raised blood pressure in the household surveys (World Health Organization, 2015). A study that assessed effective coverage[4] of primary care services in eight countries in sub-Saharan Africa found about 28 percent of effective coverage for antenatal care, 21 percent for sick child and 26 percent for family planning (Leslie, Malata, Ndiaye, and Kruk, 2017).

In many instances poor people circumvent nearby low-level facilities in favour of high-level ones that are often characterised by higher costs, while being located in urban areas. For instance, low-level facilities were bypassed by the Tanzanian patients in the Iringa district in favour of those that offered high-level services (Leonard, Mliga, and Mariam, 2002). Approximately five percent of sick children in Punjab, Pakistan went to low-level rural primary healthcare facilities, while 50 percent chose to rather visit private dispensaries, and the rest visited private doctors (Pakistan Institute for Environment Development Action and Management Project, 1994). In rural Mozambique, about 30.8 percent of poor women respondents bypassed the nearest clinics for prenatal care in favour of distant clinics (Yao and Agadjanian, 2018). This indicates that patients can discern high quality services and would choose higher quality over ease of access.

[3] Raised blood pressure is defined as systolic blood pressure over 140 mm Hg and/or diastolic blood pressure over 90mm Hg on one occasion (World Health Organization, 2015).

[4] Effective coverage refers to the portion of potential health gain that can be delivered through an intervention by the health system. It combines the following three elements: need, utilisation, and quality of healthcare intervention (Leslie et al., 2017; Ng et al., 2014).

In presenting the motivation for studying accountability and service delivery in health and education in this dissertation, this is achieved through providing background context on South Africa's low performance in the delivery of primary healthcare and basic education.

1.2 SOUTH AFRICAN CONTEXT: WHY THE FOCUS ON ACCOUNTABILITY AND SERVICE DELIVERY

Since the demise of apartheid, South Africa improved economic conditions and accelerated public spending on social services (World Bank, 2011; Nelson, 2007). Much of the social spending has been referred to as pro-poor as it targeted the previously disadvantaged majority. From the early 1990s, when South Africa became a democracy, the democratic South African government paid substantial attention to increasing the social service budgets. Fiscal incidence studies in both health and education have shown that tremendous resource shifts have occurred and government spending on these areas has become pro-poor (Van der Berg 2006; Gustafsson and Patel 2006; Burger et al., 2012).

South African government's health and education expenditure levels compare well to those of its upper-middle-income counterparts. In 2015, total expenditures on health[5] and education comprised 8.2 percent and 6.0 percent of gross domestic product respectively (World Bank, 2016; World Health Organization., 2019). These are higher than the average upper-middle-income country share of 6.6 percent (of government health expenditure) and 4.6 percent (of government education expenditure) as a percentage of GDP. In comparison, these expenditures on health and education are slightly less than Brazil's 8.9 percent and 6.2 percent respectively, but higher than Mexico's 5.9 percent and 5.2 percent.

On the education front, despite huge investment of fiscal resources on the poor, there has been little progress in the education quality enjoyed by the disadvantaged majority (Garcia and Weiss, 2017; Van der Berg et al., 2011; Taylor 2011; Van der Berg, 2008; Van der Berg and Burger 2002). According to the World Bank (2011), international comparisons reveal that South Africa scores below her peers in international assessments, such as the Trends in International Math and Science Study (TIMMS) and the Progress in International Reading Literacy Study (PIRLS). Nevertheless, recent international assessments indicate modest improvements in the performance of South African cohorts of students (Van der Berg and Gustafsson, 2019). Failure of the South African education system to adequately address the challenges of quality leads to poor outcomes relative

[5] Only about half of the expenditure on health care is government funding for public sector health services

to total expenditure. In the country's National Development Plan (NDP) it is noted that the main factor that contributes to the failings of the schooling sector is:

> "*weak capacity throughout the civil service* – teachers, principals and system-level officials, which results not only in poor schooling outcomes, but also breeds a lack of respect for government" (emphasis added) (NPC, 2011: 270).

In the health sector, Christian and Crisp (2012) observe that South Africa has not managed to significantly improve health outcomes despite large resource shifts in health expenditure since 1994. Their study points out that most health indicators remain in a dire state relative to even those of middle- and low-income countries whose health expenditures are substantially lower than South Africa's. As depicted in the South African NDP, the health sector is characterised by failures in a variety of programmes that include maternal and child health, HIV/AIDS, Tuberculosis and various other infections and diseases (NPC, 2011).

In a Cape Town survey conducted in 2005, nurses voiced their dissatisfaction with management-related issues, including insufficient training to address issues related to HIV and AIDS, lack of moral and practical support, and inadequate supervision (Lehman and Zulu, 2005). According to Mooney and McIntyre (2008) the problems associated with health and healthcare in South Africa can be traced back to the apartheid legacy, continuing poverty, income inequality, HIV/AIDS, and the effect of neoliberal economic policies and globalisation. Sanders and Chopra (2006) highlight worsening health inequalities that stem from the obstruction of pro-poor policies and programmes due to fiscal restraints and prioritisation of technical considerations instead of developmental ones. Moreover, there is a tendency of non-implementation of good health policies in remote areas as a result of poor relationships between medical staff and their patients. In official documents, this non-implementation of policy is also ascribed to the principal-agent problem, where most health professionals are more concerned with their personal benefits like pay and working conditions rather than their responsibilities and duties to their patients and their employer(s) (NPC, 2011).

The failure of the district health system and primary healthcare to perform successfully is at the core of the failure within the entire health sector (Kruk, Gage, Joseph, et al., 2018; NPC, 2011; Maphumulo and Bhengu, 2019; Thapa et al., 2019). Some of the characteristic features of the dysfunctional health system in South Africa are "poor authority, *feeble accountability*, marginalisation of clinical processes and low staff morale." (NPC, 2011: 301) (Emphasis added).

Since the 2004 WDR, researchers and policymakers have been sceptical about the effectiveness of additional resources in curbing low performance in the public service sector. It is not clear that the problems in the health and education system are only related to accountability and quality, or to

what degree more resources would make a difference within the sector. However, it would be fair to conclude that weak accountability in service delivery is likely to play a major role in the poor quality of services delivered and more resources are unlikely to be able to solve all problems in both sectors. Below, the problem of weak accountability in service delivery in health and education is outlined.

1.3 ACCOUNTABILITY: THE POTENTIAL MISSING LINK BETWEEN RESOURCES AND QUALITY SERVICES

There is an increasing accord that it is possible to improve service delivery outcomes greatly without additional resources, assuming that sufficient initial resources have been allocated. This improvement could be achieved if resource leakages are minimised, frontline providers, such as teachers and health providers, are always at work and, while at work, they are putting in the necessary effort to deliver services. Thus, there is a need to strengthen the providers' intermediary inputs (effort or quality) to achieve greater value for money. To achieve this, there is a required improvement in governance and accountability across the entire service delivery chain (Kimenyi, 2013).

The principal culprit in low quality and poor public services is most likely "weak accountability" of those who provide services (agents) to both those who appoint them (principals) to serve and to the recipients of services (World Bank, 2003). In any production environment, what determines the effective use of resources are the incentives faced by the agents (Bruns, Filmer and Patrinos, 2011). For instance, in Kenya the additional inputs that emanated from the contract teacher programme[6] were diverted by existing civil-service teachers in two ways: (1) they reduced effort, which minimised the favourable impact of smaller class sizes for their students, (2) they sought rents through nepotism, such as, hiring their relatives, whose students performed worse than those of other contract teachers (Duflo, Dupas, and Kremer, 2015). The programme had been structured in such a way as to allow rent seeking in response to the incentives with which teachers had been faced. In public services, such as health and education, incentive systems (like in most sectors in the economy) face a principal-agent problem where the principals (Departments of health and education, and citizens) have to ensure that their agents (officials and frontline providers, such as teachers, doctors and nurses) provide quality education and healthcare to the citizenry.

[6] The contract teacher programme involved the hiring of teachers temporarily subject to renewal of their contracts by the community. (Duflo et al., 2015).

The processes through which health and education are generated are complex and not only determined by the inputs (e.g. instructional effort or diagnostic effort and quality) of both health and education service providers. The standard principal-agent models do not address the role of public servants such as healthcare workers and teachers who provide only an intermediary input (e.g. teaching quality or diagnostic quality or effort). Moreover, these public servants cannot be held fully accountable for the ultimate outcomes produced because such outcomes are subject to a wide array of factors outside the control of education and health sectors. This means that the models presented in this dissertation have to be viewed as incomplete and not fully applicable to the problems examined in this dissertation. However, they are included since they are the closest possible models to these problems and provide some assistance in starting to think about how the principal-agent problem manifests in these public sector settings.

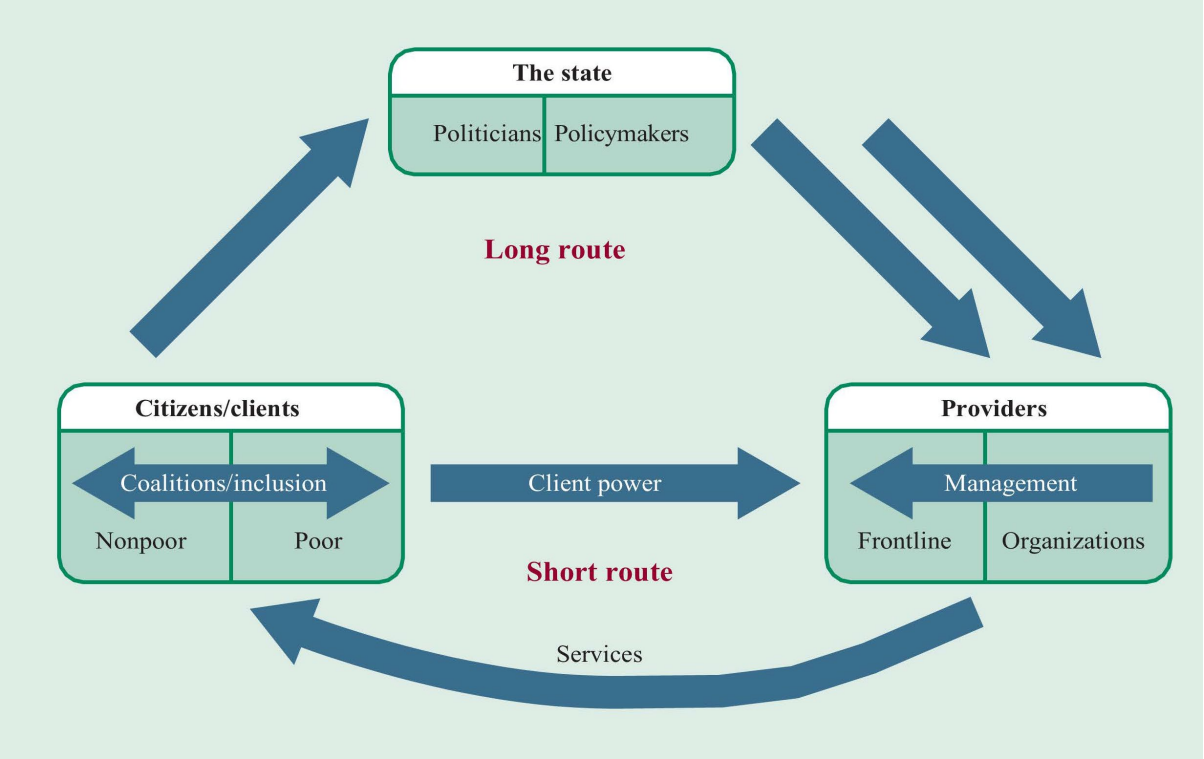
Accountability is defined as an institutional framework that makes effective delivery of services possible through assigning proper incentives to interdependent agents (Oni, Nguezet and Amao, 2013). This is done by minimising information asymmetry among agents. Figure 1-1 below shows two types of routes of accountability between the actors. The first route – the long route – shows the principal-agent relationship between citizens/clients, the state and service providers. In this route, citizens (clients) hire elected officials (the state) to act on their behalf in providing public services. In turn, the state delegates this function to service providers (officials, teachers, doctors and nurses) by giving them incentives and budgets (Figure 1-1). Bruns et al. (2011: 11) describe the long route as demanding "a more complex system of incentives and accountability". Referring to the route, Oni et al. (2013) argue that the framework brings about a sequential set of principal-agent problems where, on the one hand, there are citizens and elected officials and, on the other hand, there are elected officials and service providers. This scenario, where the state acts as an intermediary, presents challenges for the 'real' principals, citizens, who often cannot evaluate the actions of the agents (service providers). The inability of the citizens to evaluate service providers is due to the existence of imperfect information, since the objectives of the citizens are frequently not aligned to those of the service providers and they may not have the knowledge to be able to judge whether the service providers are acting in a way that is aligned with their objectives. Moreover, many citizens have low expectations of the services they are meant to receive and a poor understanding of the quality of services they are entitled to. They have often never been exposed to "high quality" services. Such low expectations are accentuated when service users are from rural settings and have lower education levels (Kosec and Wantchekon, 2020). It is for this reason that a more direct route to accountability – the short route – is desirable, as this will ensure

effective monitoring of the actions of frontline providers by empowered citizens (Bruns et al., 2011).

Unlike the long route, the short route of accountability runs directly from clients to service providers (Figure 1-1). When a customer purchases a product that is easy to monitor from a vendor, the client power is strong and the direct relationship between the customer and the vendor is sufficient to ensure effective service delivery (Bruns et al., 2011). Most poor people from rural parts of the country may not have the voice and influence to compel political leaders to account by voting them out during elections. Moreover, difficulties in service delivery monitoring may hamper the implementation of an effective compact between policymakers and service providers (Bruns et al., 2011). Therefore, strengthening the short route through empowering patients, students and parents and giving them a direct voice can be effective in improving service delivery (Bruns et al., 2011; World Bank, 2003).

This strengthening of the short route can lead to social accountability, which is a process in which citizens or clients can be engaged to hold policymakers and service providers answerable for the services that they provide (Danhoundo, Nasiri, and Wiktorowicz, 2018). Social accountability encapsulates actions such as citizen monitoring and oversight of performance and citizen participation in resource allocation decision-making such as participatory budgeting, public expenditure tracking, monitoring of public service delivery, and citizen advisory boards (Fox, 2015).

A detailed conceptual framework of the dissertation that is based on the principal-agent theory is provided below.



Source: World Bank 2003

Figure 1-1: The Accountability Framework

1.4 CONCEPTUAL FRAMEWORK BASED ON PRINCIPAL-AGENT THEORY

Agency theory allows for the understanding of how financial motivations assist in bringing into line contradictory objectives in the health and education sectors, as patients and providers or parents and school principals and teachers, have conflicting inclinations and goals. In a competitive market, best outcomes are realised consequent to perfect competition and well informed consumers (Mwachofi and Al-assaf, 2011). Nevertheless, in reality, failure of markets prevents the realisation of best outcomes. In public services, such as health and education, the main problem emanates from an inequality of information between the agent, who has the local information due to their implementation role, and the principal, who commissioned the service but does not have full information. For instance, patients, students and parents depend on healthcare workers and teachers for their healthcare and education, but do not know if the providers are performing as expected. According to classic economic theory, in such a situation, agents are subject to moral hazard, as they have an incentive to shirk, since the principal is unable to verify their actions (Wagner, 2019).

In the context of the principal-agent theory (PAT), public accountability refers to the ability of the principal to evaluate the performance of his or her agent (Achen and Bartells, 2017; Healy,

Malhotra, and Mo, 2010). Theoretical frameworks that are based on different institutional settings and their consequences for accountability can shed light on the association between accountability and institutional structure (Gailmard, 2014).

As widely used in the analysis of public accountability, the principal-agent theory is flexible in modelling countless variations in institutional arrangement, and comparing their potential in shaping needed behaviour of agents (Gailmard 2014). In a PAT model or relationship, a player or group of players, referred to as an agent, performs an action for another player or group of players, known as a principal. In such a model, the principal can make a decision that affects the incentives of the agent to take any of its possible actions. Within the milieu of the PAT model, there exists dimensions that may lead to issues that require monitoring and in certain instances cause concern on the part of principals and agents. Such dimensions are as follows:

1) Actors as rational utility maximisers

In the context of primary healthcare and basic education, national and provincial Departments of Health and Basic Education serve as principals to frontline workers, such as healthcare workers and teachers (who are the agents). In their role they are likely to act in their self-interest by advancing their priorities in light of their organisational goals and objectives. As principals, the departments may want to ensure that quality teaching and healthcare reflect these priorities and expect their agents to accomplish them within their job descriptions. The agents would want to secure their interests, in terms of the incentives they are offered. In an employer-employee relationship, the agents would want to maximise the remuneration they get from the organisations they work for and also minimise their own effort.

2) Information asymmetry

This is a situation in which parties to an agreement may have different information about a transaction. In other words, principals may have different information to that possessed by the agents. In public primary healthcare and basic education, government departments may be unaware of the nature of services and the performance quality offered by their agents (school principals, teachers, and healthcare workers). Healthcare is characterised by asymmetry of information between providers and clients.

3) Goal divergence

The interest of the agent may not be consistent with the principal's expectations and envisaged outcomes (Miller, 2005). The agent's secondary objectives may result in the divergence of goals and behaviours that can sway attention away from the principal's primary objectives and goals. It

is therefore in the principal's interest to attempt to align the agents' interest with their interest through incentives. However, public sector organisations are hampered financially from offering attractive and exciting compensation and other benefits to recruit and retain the most competent workers.

4) Moral hazard

In principal-agent relationships, moral hazard may occur as a result of goal divergence and asymmetric information. Moral hazard occurs when one actor (either the principal or the agent) is driven to behave in a manner in which one party benefits at the expense of the other party. For instance, an agent may shirk instead of putting in effort to do the work. Within the public primary healthcare and basic education environment, agents may engage in opportunistic behaviours, thereby failing to honour the terms and conditions of their contracts.

5) Adverse selection

An agent may use his or her private information to the detriment of the other party (the principal), who may be less informed. In the context of health and education in this dissertation, the less informed principal may be Departments of Health and Basic Education and citizens. Adverse selection in such settings could manifest in a type of market failure due to asymmetric information. Healthcare workers, teachers and school principals have suitable qualifications for their functions of providing quality healthcare and education. Professional bodies such as the Health Professions Council of South Africa (HPCSA), South African Nursing Council (SANC) and South African Council of Educators (SACE) regulate qualifications of doctors, nurses and teachers respectively. Provincial Departments of Health and Basic Education presumably ensure that they hire the best qualified frontline workers with the expectation that they will deliver quality services.

These dimensions of the PAT model are discussed again in the conclusion of the dissertation where they are most likely to apply, given findings on the questions presented. More information on the contribution of the dissertation is provided below.

1.5 MOTIVATION AND CONTRIBUTION

The problems manifested through absenteeism, low time-on-task and poor performance among providers characterise failures from the supply side (Banerjee, Banerji, Duflo, Glennester, and Khemani, 2008; Dupas, 2011). Clients of education and healthcare services are not able to monitor the actions of providers due to imperfect information. The delivery of public services often takes place in the context where there are information asymmetries between providers and users about the users' demands and providers' responsibilities and capabilities (Kosec and Wantchekon, 2020).

Most studies on information examine the impact of information on public service delivery and economic development (Ahrend, 2002; Banerjee, Kumar, Pande, and Su, 2011; Besley and Burgess, 2002; Jia, Kudamatsu, and Seim, 2015; Reinikka and Svensson, 2004). There is, however, no firm evidence on how public sectors such as education and health mitigate problems of information failure between principals and their agents. In an attempt to fill this gap, this dissertation sought, with the use of the principal-agent model as background, to test the following three hypotheses:

1) Hypothesis 1: Patients (and parents) are unable to discern quality in healthcare (and education) provision because they are complex services. This suggests that the "short route" to accountability cannot succeed in activating patients to monitor healthcare delivery. The "long route" is also not effective in that policymakers do not know the needs of patients (and parents). This also implies that the principal agent model can be explained through the perspective of management.
2) Hypothesis 2: In a healthcare market, the most effective relationship between the patient and the healthcare provider is that of the patient as principal and the healthcare provider as agent. Since the public primary healthcare market is characterised by patients who do not have the ability to pay for services, government provides subsidy for the patients. In a scenario where patients were paying and there was bad service from the provider, patients would leave her. However, in the public healthcare market, the government determines whether to close down the bad provider or let it continue to provide the services. Since the provider does not provide quality-critical care there is little directly observable cost to the government, at least over the short-term, in allowing the provider to continue providing the bad service.
3) Hypothesis 3: The long route to accountability would work if only the government tried it. The main problem in healthcare and education is that the government does not take full or effective advantage of the long route of accountability. As a principal in the accountability chain the government is failing to ensure that her agents (nurses, school principals and teachers) perform their job and citizens are unable to keep governments fully accountable given the lags between elections.

This dissertation focuses on South Africa's accountability and principal-agent problem in service delivery within public healthcare and education. Studying accountability and the principal-agent problem in the public sector requires data, however the available data, such as educational assessment data and administrative health data, do not always capture the necessary fields for conducting such analyses. Therefore, it was necessary to create unique datasets through standardised patient (SP) surveys, patient exit interviews (PEIs) and in-depth interviews with

(school) principals to examine accountability and the principal-agent problem in health and education. Part of the contribution of this dissertation is not only answering questions regarding accountability in the public sector, but also providing novel data to do so, thereby clearly showing the shortcomings of the current administrative and public sector data in highlighting an issue integral to the impact of this sector.

The central contribution of this dissertation, therefore, is to contemplate how informational asymmetries in public services, such as health and education conspire with low expectations from clients and in many instances principals (in the principal-agent relationship) to act as binding constraints for the delivery of high-quality primary healthcare and basic education services.

Another contribution is closely examining the interaction between the provider and the client (in particular, healthcare) with a view to identify any blind spots or challenges in the implementation of policy. This is a critical area in finding solutions for the improvement of the delivery of public services to the citizens of low-income and middle-income countries. There have been studies (Collier, Dercon, and Mackinnon, 2002; Lavy and German, 1994; Nel, Tlale, Engelbrecht, and Nel, 2016) that concentrated on structural aspects of quality, such as physical, administrative and management infrastructure. A noteworthy omission from these structural indicators is the quality of providers, which may account for most health expenditures.

1.6 DISSERTATION STRUCTURE

This dissertation comprises of three research papers which were completed during the course of this study. The central purpose of the three papers is to examine the principal-agent problem and accountability in health and education, with primary healthcare facilities and primary schools in South Africa as focal points. Specifically, the dissertation examines the supply-side factors of health and education, that is, the provision of healthcare and basic education and how these constrain the quality of services for the consumers.

Chapter 2 investigates whether patient satisfaction, both the satisfaction of real and standardised ('fake') patients, is correlated with clinical quality (as measured through standardised patient visits) and what such correlation, or lack thereof, suggests about the patients' ability to read signals about the quality of providers' care. SP visits and PEIs are conducted in primary healthcare facilities in two South African provinces for three health areas: tuberculosis, hypertension and contraception. Univariate, bivariate and multivariate analysis are used to analyse the data.

Chapter 3 examines the non-clinical dimensions of healthcare, and their importance to activated patients - as proxied by standardised patients (SPs) relative to real patients (RPs). The term

'activated patients' refers to patients who are motivated and are equipped with knowledge, skills and confidence to make appropriate decisions in managing their health (Wagner, 1998). The same datasets in Chapter 2 are used in this chapter. Pearson Chi square, one-way ANOVA and multivariate logistic regression are used to estimate the odds ratios of responsiveness of non-clinical quality dimensions of care on patient satisfaction.

Chapter 4 explores the experiences and perceptions of school principals and teachers, with regards to how instructional leadership is practised in their schools and how it is associated with academic performance in schools. Two types of data (qualitative data, from interviews with school principals and teachers, and quantitative data, from an international educational evaluation) are used. The qualitative data are analysed through thematic analysis, while the quantitative data are analysed through uni- and multivariate analysis.

Chapter 5 provides a summary of findings and conclusions for the entire dissertation. Additionally, the chapter introduces the ramifications of the findings, including policy implications, using the theoretical framework of the study as set out in this chapter.

CHAPTER 2: PROVIDER SIGNALLING AND ASYMMETRIC INFORMATION IN HEALTHCARE MARKETS: EVIDENCE FROM A STANDARDISED PATIENT STUDY IN SOUTH AFRICA

ABSTRACT

Different parties to a transaction often have unequal amounts of information regarding the transaction. In healthcare, patients do not have medical training and consequently are unable to evaluate intricate medical activities. To mitigate the effects of asymmetric information in healthcare, there are non-market institutions that have emerged to mediate patient-provider encounters. However, in cases where such arrangements are missing, patients from poor socioeconomic backgrounds, and even better educated patients, may not know how to evaluate whether they are receiving competent health-related expertise or not. The aim of this chapter is to investigate whether patient satisfaction is correlated with clinical quality and what such correlation or lack thereof suggests about patients' ability to read signals about the quality of providers' care and patients' ability to monitor healthcare delivery. SP visits and PEIs were conducted in primary healthcare facilities in two South African provinces for three health areas: tuberculosis, hypertension and contraception. While the two samples were not nationally representative, they provided an indication of the value of patient satisfaction as a measure of clinical quality in South Africa. For RPs, there were some instances of positive and significant correlations between reported satisfaction and clinical quality as signalled by adherence to clinical practice guidelines (CPG). However, in most cases there was no significant association between RPs' experience of care and satisfaction. The results indicate that RPs may have some ability to discern and report on clinical quality through satisfaction measures. This finding implies that patient satisfaction can potentially serve as signal of clinical quality and therefore has policy relevance, despite its shortcomings as a quality measure. On the other hand, for the cases of insignificant correlations it indicates the existence of the principal agent problem in which medical qualifications and being appointed at a public healthcare facility fail to serve as true signals of quality.

2.1 INTRODUCTION

The approach to information economics followed in this paper is grounded on the proposition that divergent groups to a deal often have unequal amounts of information concerning that transaction (Fletcher-Brown, Pereira, and Nyadzayo, 2018; Kirmani and Rao, 2003). Since patients do not have medical training, they are unable to fully evaluate intricate medical activities (Arrow, 1963; Dranove, Kessler, McClellan, and Satterthwaite, 2003; Leonard, 2008). Generally, quality refers to the extent to which a product or service of an establishment is related to the needs and expectations of customers. However, this view of quality cannot be made wholly applicable in the healthcare market context. Healthcare is a credence good[7] and is characterised by the existence of asymmetric information between the healthcare provider[8] and the patient (Das, Holla, Mohpal, and Muralidharan, 2016; Dulleck and Kerschbamer, 2006). This view of the existence of asymmetric information between the patient and healthcare provider is also shared by Leonard and Leonard (2004). These authors add that after the clinical interaction, the patient's information about quality of care is whether he or she was cured, and one can be cured even if care was poor or not cured although care was good, so the quality of health outcomes do not necessarily point towards the quality of care. Moreover, such insufficient information that leads to an inability of patients to distinguish between high-quality and low-quality providers gives rise to ineffective market forces that cannot eliminate low-quality providers and can permanently entrench these providers as a feature of the market (Evans and Welander Tärneberg, 2017).

To mitigate the effects of asymmetric information in healthcare, "non-market institutions such as professions, regulatory frameworks, standard setting and public health bureaucracies, have evolved to mediate patient-provider interactions" (Bloom, Standing, and Lloyd, 2008: 2077). The authors note that in cases where such arrangements are no longer in place, patients, especially those from poor backgrounds, are denied access to competent health-related expertise.

The aim of this study was to examine how patient satisfaction is correlated with clinical quality and what such correlation (or lack thereof) suggests about patients' ability to read signals, official and explicit or unofficial and implicit, about the quality of providers' care. Most importantly, the study's intention was to determine whether the "short route" to accountability could potentially be used to make patients actively monitor healthcare delivery. It is hypothesised that the "short route" to

[7] A credence good is a good or service in which there is asymmetry of information about the quality between the provider and the consumer. Usually the provider who is an expert knows more than the consumer about the quality a consumer needs (Dulleck and Kerschbamer, 2006).

[8] A healthcare provider is defined as someone who obtains payments for dispensing medical advice to a patient. The payment can be in the form of salary or fee-for service from the patient or a third-party, for example, government (Das and Hammer, 2014).

accountability cannot succeed in ensuring that patients are active participants in monitoring healthcare delivery.

The educational qualification of the healthcare workers employed by health provincial departments, and their registration with the Health Professions Council of South Africa (HPCSA) and/or South African Nursing Council (SANC) could be considered potential true signals of quality. However, variation in quality remains due to poor supervision, varying quality of qualifications and the existence of principal-agent problems between the provider (the agent) and employer (the principal). The adherence to the clinical practice guidelines (CPGs) during patient-provider interaction could serve as a proxy for the quality of education of nurses (the primary signal). The correlation between patient satisfaction following a clinical encounter and clinical quality indicators could, therefore, be indicative of a patients' ability to discern quality. Even uniformed patients who are uncertain about quality of care, as measured through adherence to CPGs, may be able to distinguish between high-quality providers and low-quality providers through their own satisfaction with the visit.

To investigate this question, SP visits and PEIs were conducted in public primary healthcare facilities in two South African provinces for three health areas: tuberculosis, hypertension and contraception. The standardised patient method, also known as 'simulated patient', 'mystery patient' or 'mock patient' approach, is considered the gold standard for research of this nature (Daniels et al., 2017; Das et al., 2015; Peabody, Luck, Glassman, Dresselhaus, and Lee, 2000; Wiseman et al., 2019). The SP method endeavours to look for a more precise and trustworthy measurement of the medical attributes of healthcare settings (Daniels et al., 2017; Das, Holla, Das, Mohanan, Tabak, 2012; Das et al., 2015). Despite some shortcomings associated with the methodology, such as only being viable among simply replicated settings; the likelihood of subjecting SPs to a risky environment; and its shortcomings to situations where it is acceptable for patients to walk in without having appointments (Holla, 2013), data from the SP method can provide a far-reaching insight into healthcare quality.

In the study, adherence to CPGs is treated as an indicator of clinical quality. If the patient (consumer) cannot access information on the true state of quality, a high-quality employer (facility manager and/or provincial department) would invest in highly trained and educated healthcare practitioners and ensure that their registration with statutory bodies, such as HPCSA and SANC, is frequently renewed to ensure quality provision to consumers, irrespective of consumers' ability to detect true quality. In this way, a high-quality provider will be able to distinguish itself from a low-quality provider since, theoretically, the facility with the highly qualified healthcare workers

provides better quality (in the form of clinical quality indicators) than the one with less qualified staff.

In cases where patients' rating of care is associated positively with clinical quality indicators, it is hypothesised that patient satisfaction can serve as a signal of true quality of care. Alternatively, if patients' rating of care is negatively associated with clinical quality indicators or no significant association exists, it is hypothesised that patient satisfaction cannot serve as an accurate and true signal of quality of care. This implies that patients cannot use the "short route" to accountability to actively monitor the delivery of healthcare.

The remainder of the paper is organised as follows. A general exposition of information in the health markets is presented in Section 2. An overview of relevant literature is provided in Section 3. Section 4 introduces the quality of healthcare challenges and reforms in South Africa. Data and methodology are explained in Section 5. Findings are presented in Section 6. Lastly, concluding remarks are reported in Section 7.

2.2 INFORMATION IN THE HEALTH MARKETS

In terms of the neoclassical economic theory, any information that may impact the buyer or seller's decision is known and well understood (Phelps, 2000). However, problems of incomplete or imperfect information are found in various markets and influence the functioning of said markets. In the context of healthcare, incomplete information issues are more prevalent, with distinctive characteristics of healthcare markets worsening the situation. In this section, healthcare markets are discussed in terms of imperfect information. Later, theoretical approaches are provided which will assist in the analysis.

2.3 HEALTHCARE MARKETS UNDER IMPERFECT INFORMATION

Healthcare markets are understood to be characterized by imperfect and asymmetric information (Phelps, 2000). Some of the distinct issues of healthcare markets include the following: consumer search problems, in which insurance limits and sometimes eliminates the motivation for consumers to conduct searches for lower prices, and prevalent restrictions on advertising in which the ability of suppliers to convey information about quality and price is prohibited.

In a study that used the national household survey data to compare states that restricted advertising by optometrists versus those where advertising was allowed, Benham (1972) found that the prohibition of advertising increased eyeglass prices by 25 percent to more than 100 percent. Quality search for uninformed consumers may be costlier and more difficult in comparison to a price search (Phelps, 2000). For quality to be effective, a consumer should be able to sample the

market, such that provider quality sampling can be expensive since it may require changing doctors and the associated fees. In managed care settings, such as primary healthcare, search for quality is even more difficult due to gatekeeping arrangements, in which a patient must be referred to a health specialist by the primary healthcare provider. Such managed care settings limit the search for a quality specialist, in that the gate keeper will not be permitted to make more than one referral for a single patient (Phelps, 2000).

Conventional economic theory postulates that differences in prices signal product quality disparities. Moreover, this leads economists to assume that differences in quality should exist to explain observed price differences. Some writers (Pratt, Wise, and Zeckhauser, 1979) have found large price differences in various markets for standard consumer products. It has been found that health insurance minimises the incentive to conduct searches on the part of the consumer. Using the model by Sadanand and Wilde (1982), there is a close association between demand elasticity and the number of buyers necessary to create a competitive equilibrium. Moreover, reimbursement insurance lowers the demand elasticity of insured consumers (Phelps and Newhouse, 1974).

Since health insurance propels the demand elasticity in the direction of zero, the buyer quantity increases as the insurance coverage becomes more complete. Thus, the model of Sadanand and Wilde (1982) envisages a direct correlation between the extent of health insurance coverage and the dispersion of prices in the market. In a context in which price is observable but quality is unobservable, searches by uninformed consumers to find a high-quality firm (for a given price) is analogous to searches on price for an observable quality, as in Sadanand and Wilde, with homogenous quality. In a model in which both price and quality are unobservable, price can typically be observed before purchase, but quality can only be observed after purchase. In a paper in which they present a unified model of consumer search, Hey and McKenna (1981) assume that product quality is heterogenous. In the case of a homogenous quality, endogenous search results in the consumer adopting a reservation price, p_r and search stopping once a price lower than p_r is found. In contrast, in a heterogenous quality model, the first step continues as before, but for each price drawn from the market, the consumer must deduce the expected quality. Then, he or she should determine if the total package affecting utility (price and quality) is satisfactory. If not, the search continues. Depending on the association between price and quality, the rational strategy for the buyer may be to buy expensive goods rather than cheap goods. In addition, it may be optimal for the sellers to signal a high quality by charging a high price. However, deceitful quality signals (posting a high price) are likely to take place when consumers cannot directly measure quality.

2.4 THEORETICAL APPROACHES LEADING INTO THE ANALYSIS

Signalling theory is helpful in explaining behaviour when different information can be accessed by two parties to a transaction (Connelly, Certo, Ireland, and Reutzel, 2011; Fletcher-Brown et al., 2018; Hampshire, Hamill, Mariwah, Mwanga, and Amoako-Sakyi, 2017). Signalling theory is beneficial in situations where people and firms communicate undiscernible things, such as quality, to one another in circumstances of unequal information (Hampshire et al., 2017). Signalling theory was first formulated in Spence's (1973) ground-breaking paper in a context where a business enterprise (the agent or 'signaller') communicates information about its products or services to its client (the principal or 'recipient') (Fletcher-Brown et al., 2018).

Typically, for signals to be effective they should be recognisable, pricey to emulate and any fake signalling of an exaggerated promise to the customer should lead to a loss of trustworthiness (Connelly et al., 2011). Receivers play an important role in a signalling cycle, such that a sender may indicate some information while the receiver may decide how to decipher the signal. For the purpose of this study, the signaller is the healthcare provider and the recipients of the signal are the patients. The signaller (provider) utilises the medical qualifications to signal quality to the recipients (patients). However, in low-capacity regulatory environments, or low-regulatory enforcement environments, these observable and costly-to-imitate signals may lose their value if the principal or employer is unable to ensure that the agent (the healthcare provider, whether a nurse or doctor) is indeed behaving in the way contracted to do. In these environments, alternative signalling (implicit or explicit) systems may develop.

The receivers (patients) interpret the signals (clinical quality questions) they receive in their interactions with healthcare providers through scanning the signalling environment. Scanning the signalling environment entails the ability of the receiver to interpret the signal. Even though RPs may not know or be aware of clinical protocols or adherence lists, in this context, reading a signal may, for example, mean interpreting a question by the provider on the patient's life circumstances as an indicator of quality. If RPs perceive a low adherence to most of the clinical quality measures, they would be expected to have lower satisfaction ratings if it is assumed that quality is correlated with satisfaction. However, if they have high satisfaction ratings despite reporting low adherence, this might indicate the existence of information asymmetries, either a lack of credible information signals on the quality of the provider or an inability of RPs to 'read' or 'receive' these signals.

The ability of the patients to scan the signalling environment depends on a number of factors that include education level, socioeconomic status, culture and gender. However, despite wide variation in these factors, patients may still be able to accurately read and discern signals.

2.5 RELATED LITERATURE: ASSOCIATION BETWEEN PATIENT SATISFACTION AND QUALITY OF CARE

As citizens' awareness with regard to their health rose and their income levels increased, there has been a noticeable improvement in their healthcare demands accompanied by a desire to attain a healthier lifestyle (Manzoor, Wei, Hussain, Asif, and Shah, 2019:1). Competition among healthcare providers around the world contributes to patients being more vigilant about the delivery of healthcare services. Competition among healthcare providers around the world contributes to patients being more vigilant about the delivery of healthcare services. A major priority of several healthcare providers has been improved patient care, with the aim of achieving the highest level of patient satisfaction (Al-Hussami, Al-Momani, Hammad, Maharmeh, and Darawad, 2017; Lee and Yom, 2007; Manzoor et al., 2019). Good healthcare service delivery provides healthcare providers with a chance to distinguish their services and facilities from others in a competitive industry

There is diverse and inconsistent evidence regarding the association between patient satisfaction and objective clinical measures of care (Farley et al., 2014). Several studies have been unable to show a strong correlation between patient satisfaction and various clinical measures of care (Chang et al., 2006; Fakhoury, McCarthy, and Addington-Hall, 1997; Rao, Clarke, Sanderson, and Hammersley, 2006; Saman and Kavanagh, 2013; Sequist et al., 2008). Other studies show that patient satisfaction may for some dimensions of care be related to physician effort and diagnostic ability of healthcare workers (such as, measure true quality) (Das and Sullinen 2006; Evans and Welander-Tarneberg, 2017; Leonard, 2008). According to Manary et al. (2013), there is also evidence that better patient experiences are associated with better health outcomes.

Several critics highlight three shortcomings of patient-reported experience measures (PREMS), especially those that assess patient satisfaction. Firstly, the credibility of patient feedback is questionable since patients do not have formal medical training. Critics point out that patient-satisfaction measures encapsulate some dimensions of "happiness" that are easily influenced by factors not related to care. However, patient satisfaction has been found to be positively associated to clinical adherence to treatment guidelines (Evans and Welander-Tärneberg, 2018; Jha, Godlee, and Abbasi, 2016). This implies that patients' satisfaction is rated on precise assessment of technical quality of care. Secondly, critics point out that patient-experience measures could be confused by other factors that are not exactly linked with process quality. For instance, patients could base their evaluation on their health status, regardless of the care they have received.

In their study on the association between health status and patient satisfaction, Covinsky et al. (1998) found no relationship between satisfaction while patients are discharged and changes in health status between time when patients are admitted and discharged. According to the authors, this implied that changes to health status and patient satisfaction assess different spheres of healthcare quality. Other researchers (Abramowitz, Cote, and Berry, 1987; Cleary, Keroy, Korpanos, and McMullen, 1983; Kravitz, Cope, Bhrany, and Leake, 1994; Ley, Kinsey, and Atherton, 1975; Lochman, 1983) revealed that patient satisfaction is rather associated with the following elements: (1) quality of doctor-patient communication, (2) interpersonal interactions between patient and hospital staff, and (4) waiting times. Thirdly, patient-experience processes may exhibit fulfilment of patients' a priori expectations. This is consistent with the findings of Joos, Hickam, and Borders (1993) that satisfaction was lower when desired service was not received.

In a recent study, and one closely related to the approach followed in this chapter, Evans and Welander-Tarneberg (2017: 2-3) identify four stylised facts based on World Bank Service Delivery Indicator data (Nigeria) with regards to patient satisfaction measures. The first stylised fact is that patient satisfaction measures show little variation – most respondents seem to rate satisfaction statements very favourably. The second fact is that patients care about and can recognise quality of provider knowledge. Three clinical quality measures in which there was statistically significant association between patient satisfaction and clinical quality were as follows: health workers' ability to explain health conditions, skills and abilities of health workers, and treatment decisions of health workers. Thirdly, the authors found that infrastructure, drug availability and medical equipment do not determine overall patient satisfaction. Lastly, the authors found no correlation between patient satisfaction and the prescription of medicine. This indicates that access to quality of care should not only be assessed by the availability of infrastructure, drug availability, medical equipment and prescription of medicine, but issues related to the quality of the clinical encounter between healthcare worker and patient should be the focus.

Several other studies highlight the influence of demographic characteristics on patient satisfaction. When evaluating service quality, it is always important to ensure that external factors do not influence data and results (Aspinal, Addington-hall, Hughes, and Hughes, 2003). For this purpose, most studies usually collect demographic data to allow an understanding of the relationship between demographic variables and satisfaction levels within the study context (Aspinal et al., 2003). There is empirical evidence that there is little or no relationship between demographic variables and satisfaction levels (Fox and Storm, 1981). Others posit that demographic factors, such as gender, education and age affect patient satisfaction (Harutyunyan, Demirchyan, and Thompson, 2010; Sundararajan, Sullivan, and Chapman, 2012). Age has been identified as the most

influential sociodemographic factor in satisfaction, and most studies found that elderly patients display greater levels of satisfaction than younger patients (Ahmad, Nawaz, and Din, 2011; Dulgerler, Ertem, and Ozer, 2012). A possible explanation for higher satisfaction rating by elderly patient is that older patients may be handled with kindness relative to younger patients or there may be a generational effect, with regards to expectations from healthcare providers.

Harutyunyan et al. (2010) suggests that patients with low levels of education and those residing in rural areas were more inclined to report higher satisfaction than more educated and urban patients. Other studies (Da Costa et al., 1999; Danielsen, Bjertnæs, Garratt, and Pettersen, 2007; Findik, Unsar, and Sut, 2010) also found that high quality of care scores were often related to lower education levels. On gender, some scholars (Garcia-Aguilar, Davey, Le, Lawry, and Rothernberger, 2000) found that male patients tend to record higher satisfaction scores than their female counterparts. The authors concluded that women were in most instances hard to satisfy.

2.6 CHALLENGES OF HEALTHCARE QUALITY IN SOUTH AFRICA: POLICY CONTEXT

The healthcare system in South Africa comprises of public and private health services with limited funding from donors and non-governmental organisations (NGOs) (Bidzha, Greyling, and Mahabir, 2017). Approximately 46.5 million South Africans (84 percent) were mainly dependent on the public health system in 2016, while 16 percent were members of medical schemes which relied on private healthcare (Health System Trust, 2017). Provision of healthcare services is done through public hospitals and clinics throughout the country. The South African government provides nearly universal health coverage, in that most people and communities can use health services and not be exposed to financial difficulties in doing so (Blecher and Harrison, 2006). Public health service delivery is conducted within a decentralized system with three spheres of government that comprises of national, provincial, of which there are nine provinces, and local governments, of which there are 278 (Bidzha et al 2017).

Scholars have pointed out several challenges that have contributed to poor healthcare service delivery in South Africa. Those challenges include the decentralization of the healthcare system, Human Resources for Health (HRH) governance challenges, lack of performance management and monitoring strategies and unequal distribution of resources (Maphumulo and Bhengu, 2019).

2.6.1 HRH governance challenges

Governance encompasses the existence of international policy contexts that are linked to successful monitoring of processes (World Health Organization, 2007). Health governance

comprises a group of regulations whose aim is to describe the obligations of those working in the health system regarding their operations and their relationship with each other (Kaplan, Dominis, Palen, and Quain, 2013). Kaplan et al. (2013) identified eight health governance principles, namely, strategic vision and direction; accountability; transparency; information generation; efficiency; equity and fairness; responsiveness; and citizen voice and participation.

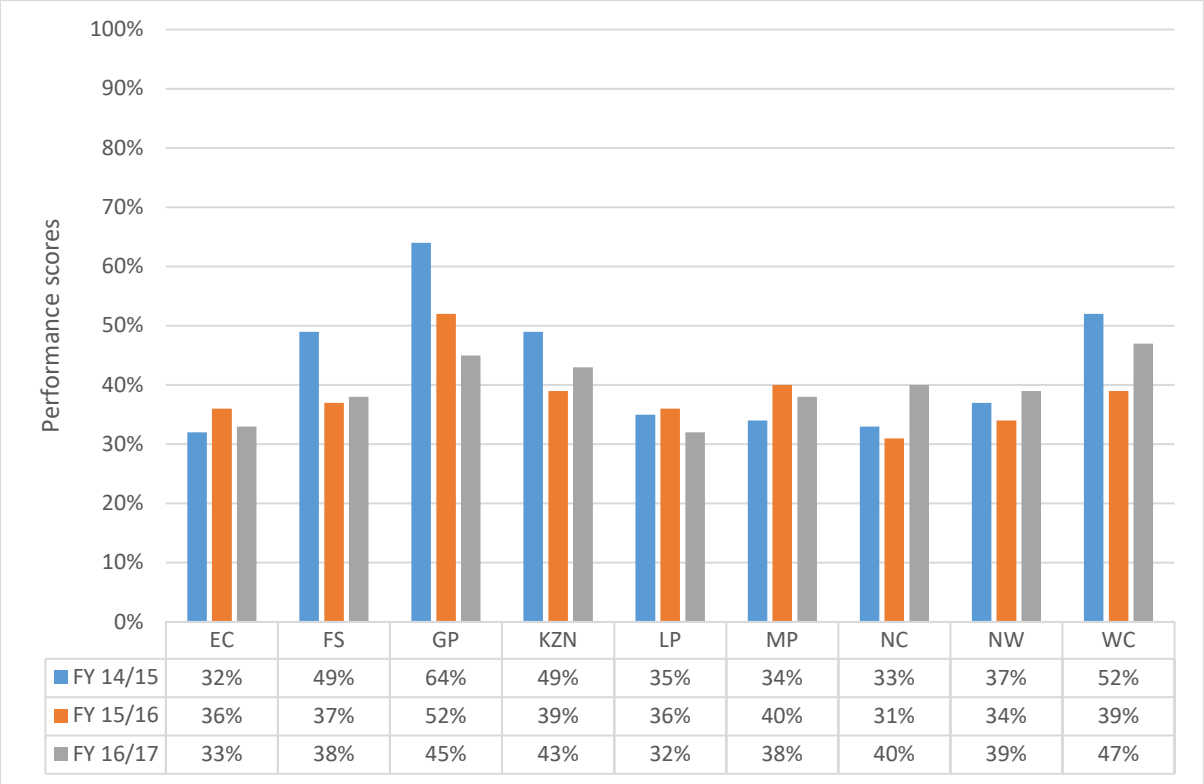
In South Africa, education and training and the scope of health professional practice are generally well regulated by the health professional councils (Rispel, Blaauw, White, and Ditlopo, 2018). Nevertheless, in 2018, there is evidence that despite the crucial task performed by the HPCSA, there were disparities in the control of health professionals under its influence (Competition Commission South Africa, 2018). Moreover, it has been found that the HPCSA does not have the competence to impose moral regulations and to address complaints urgently (Competition Commission South Africa, 2018).

2.6.2 Lack of performance management and monitoring strategies

Among the shortcomings in the existing human resources for health (HRH), there has been a deficiency of operational management capacity at all health facility types and provincial health departments (Rispel, Blaauw, White, and Ditlopo 2018: 18; Pillay, 2010). This has been exacerbated by the promotion of managers to senior positions due to the length of their institutional service, with no regard to their skills and competence (Pillay, 2010). According to Siddle (2011: 6), poor service delivery is aggravated by absence of functional management and monitoring approaches that result in many employees not respecting the law. This is of great concern, since evidence (Soucat, Scheffler, and Ghebreyesus, 2013) suggests a positive association between effective operational management and healthcare performance. HRH is very important in South Africa, since it constitutes approximately two-thirds of total public health expenditure (Smith, Ranchod, Strugnell, and Wishnia, 2018). HRH management is defined as the official and interactive method of formulating conclusions on various matters, such as recruitment of staff, hiring and retention of staff, worker discipline and employment termination (Soucat et al., 2013). An effective HRH manager's job is to reduce the principal agent problem by motivating health workers to accomplish their work through bringing their personal objectives in line with those of the organisation and reducing the difference between aptitude and functionality (Soucat et al., 2013).

The OHSC 2016/17 inspection report underscores poor performance in the area of operational management in all nine provinces. The area of operational management assesses health facilities' amenability with national core standards, particularly the health facility's ability to deliver secure and valuable patient care through successful organisation of human resources and related

organisational aspects. Figure 2-1 demonstrates that Gauteng, KwaZulu-Natal and the Western Cape received relatively higher scores than the more rural provinces, but their average scores were lower than 70 percent, indicating weak operational management of facilities examined (OHSC, 2018).



	EC	FS	GP	KZN	LP	MP	NC	NW	WC
FY 14/15	32%	49%	64%	49%	35%	34%	33%	37%	52%
FY 15/16	36%	37%	52%	39%	36%	40%	31%	34%	39%
FY 16/17	33%	38%	45%	43%	32%	38%	40%	39%	47%

Figure 2-1: Average provincial performance scores for operational management, South Africa, 2014/15-2016/17

Source: OHSC, 2018

Figure 2-2 shows that the average performance scores for clinics were marginally lower than those for hospitals and CHCs, at 33 percent. This shows that one in every three clinics examined during 2016/17 converged to the national core standards for operational management. However, even the average performance scores for hospitals and CHCs were low at 53 percent and 39 percent.

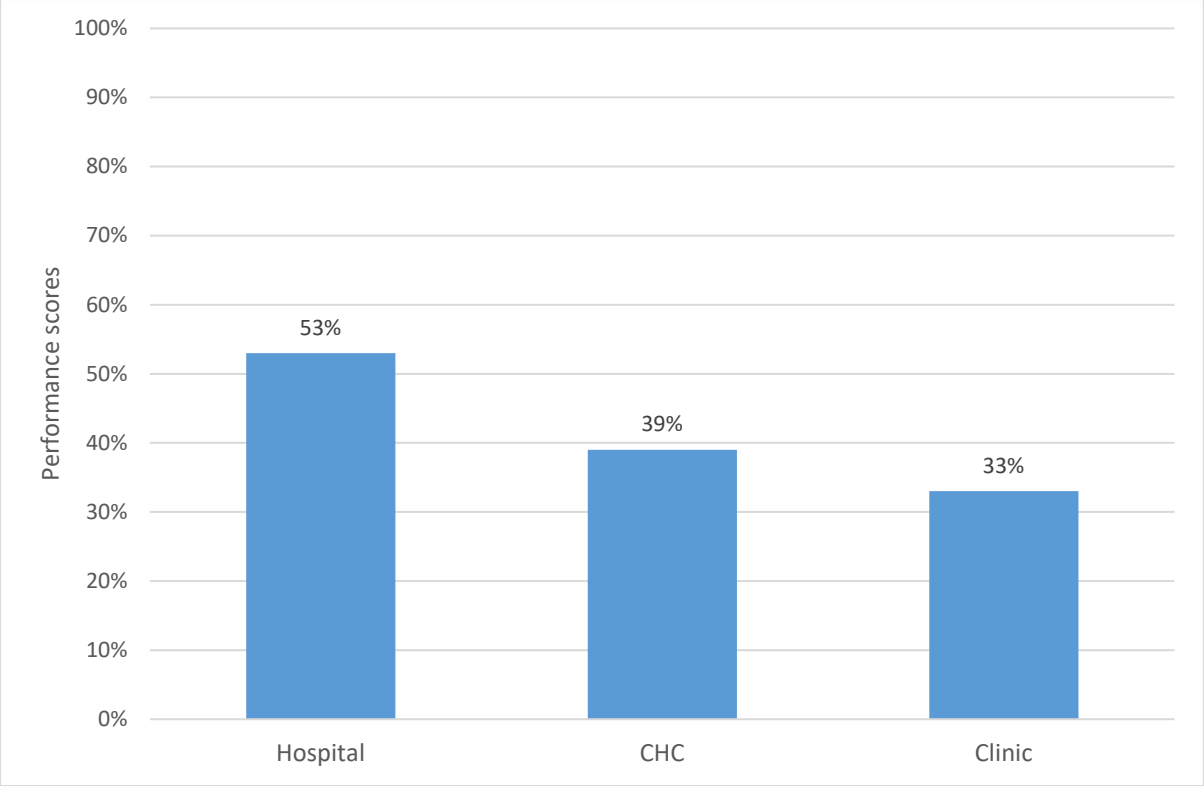


Figure 2-2: Average national performance scores for operational management by facility type, South Africa, 2016/17

Source: OSHC, 2018

2.6.3 Unequal distribution of resources

South Africa can be positioned among the best five countries in the African region with regard to concentration of physicians, nursing and midwifery personnel per 1000 population (World Health Organization, 2018). There is a lack of revised and precise information on the skewed distribution of healthcare staff between urban and rural areas, between the public and private healthcare sectors and within provinces (Day, Gray, and Ndlovu, 2018). For instance, the individual registers of the HPCSA can differentiate between expert personnel, but cannot assist in verifying the place in which the medical doctor is practicing or whether he/she is still practicing (Day et al., 2018). However, the South African private sector continues to have a higher physician-to-population ratio (Econex, 2009) than the public sector. This is due to the extremely resourced character of the private-sector health market, and non-financial factors which push doctors out of the public sector (Ashmore and Gilson, 2015). The Health Market Inquiry report found that in 2015, more than 55 percent of all general health workers and almost 75 percent of all nurses were employed in the public sector, while merely more than 35 percent of clinical specialists and less than one third of dentists were employed in the public sector. This misdistribution in HRH is aggravated by

the absence of posts for dentists and rehabilitation therapists in the public health sector (Rispel et al., 2018).

2.6.4 Decentralization of healthcare system

Decentralization allows local structures to bargain with central government for higher resource allocation to previously marginalized groups (Alves et al., 2013:76), however decentralization has some associated drawbacks. In healthcare, the separation of policy formulators from policy implementers has resulted in a crisis of healthcare delivery (Maphumulo and Bhengu, 2019). For instance, at the provincial level, policy executors were unable to monitor health funds, and as a result health funds were utilised for other spending based on political priorities (Surender 2014: 18).

2.6.5 Failure of information and provider choice channel as an effective mechanism in the public health market?

According to Evans and Welander-Tarneberg (2018), poor quality of healthcare may emanate from information failure. This indicates that the inability of patients to discern between low-quality and high-quality care causes markets to be less effective in getting rid of low-quality providers and replacing them with high-quality providers. Moreover, in situations where information failure is prevalent, patients are expected to base their assessment of quality on observable factors, such as infrastructure and availability of drugs (Evans and Welander-Tarneberg, 2018), which may not always directly relate to the quality of care provided within these facilities.

In South Africa's public primary healthcare system, a problem of weak market forces has emanated due to the free availability of access to healthcare at public hospitals and clinics. In such a context, pricing and service fees lose their ability to serve as signal of quality as pricing and services fees do not apply. Since individuals are typically required to consult at their closest public primary healthcare facility, alongside following referral pathways up into the system if higher levels of care are required, provider choice cannot serve as an indicator of assessed quality.

Evidence shows that the move to free primary healthcare was successful in raising access to healthcare for the low-income population through the reduction of travel costs (Econex, 2011). However, a significant rise in out-of-pocket payments (OOP) in the private sector by people from low-income groups after the introduction of free primary healthcare, indicates a strong preference for the private sector by people from the low-income group (Havemann and Van der Berg, 2003). Such a preference for the services of the private healthcare can be associated with demand for higher quality healthcare.

2.7 DATA AND METHODS

2.7.1 Setting

This cross-sectional study uses information from two sources (SPs and PEIs) to assess the association between non-clinical quality measures and patient satisfaction, with overall care at PHC facilities in two metropolitan districts of South Africa. The study is conducted in public PHC health clinics situated in the Cape Town metropolitan district (Western Cape Province) and Buffalo City (Eastern Cape Province). All facilities in the sample are administered by the provincial departments of health in the respective provinces.

Cape Town Metropolitan falls into socioeconomic Quintile 5, and this makes it among the wealthiest health districts in the country (Massyn, Padarath, Peer, and Day, 2017). Compared to most other districts, the metropolitan area has a significantly greater proportion of the population who have private health insurance at 24 percent, leaving 76 percent relying on government-operated facilities (Massyn et al., 2017). The metropolitan district had a population of 4 067 774 people in 2016. Buffalo City, which is situated on the east coast of the Eastern Cape Province, is one of the two metropolitan districts in the province (Nelson Mandela Metropolitan is the other metropolitan district). The metropolitan area comprises of a population of 765 876 individuals and is categorised into socioeconomic Quintile 4, which makes it a wealthy district, but poorer than the Cape Town Metropolitan. Medical scheme coverage in Buffalo City is 17.4 percent (Massyn et al., 2017).

The study was conducted through utilising 43 percent (20 of 46) of the primary healthcare (PHC) clinics in the Cape Town metropolitan district (Western Cape Province) and 26 percent (20 of 77) of the primary healthcare clinics in Buffalo City (Eastern Cape Province) (Christian, Gerdtham, Hompashe, Smith, and Burger, 2018). It was expected that urban facilities in the remaining provinces throughout the country would yield comparable results. This emanates from Booysen's (2003) finding that intra-urban differences regarding service delivery and inequalities in South Africa are not substantial. Booysen's assertion has been corroborated in a recent similar study by Omotoso and Koch (2018). At the least, the study's focus on metropolitan facilities would establish an upper limit for quality and what is possible. The PHC expenditure per capita in the districts for the 2016/2017[9] financial year was similar between the study sites, with R1221 in Buffalo City and R1178 in Cape Town.

[9] The expenditure figures for PHC expenditure for capita were adjusted based on CPIX to reflect real 2016/17 prices. (Massyn et al., 2017).

2.7.2 Study approach

The study formed part of a broader study to assess the quality of healthcare at public primary healthcare facilities in two South African provinces. The study was carried out across three health areas: contraception/family planning, tuberculosis and hypertension (and was conducted in two parts, namely, SP and patient exit interview (PEI)).

The standardised patient method entailed a fake patient presenting at a primary healthcare facility with a set of pre-planned symptoms for a specified health condition (either tuberculosis or hypertension), or seeking advice on contraception (preventative care), that would probably lead to a series of clinical enquiries, investigations and assessments. Having non-patients strictly approximate the behaviour of actual patients necessitated thorough coaching and accurate teaching to the recruited SPs. The 24 recruited SPs – eight per health condition from each province – were instructed based on a script with typical questions that are expected to be asked during consultation. The SP's answers were standardised and devised to circumvent intrusive assessments. The SPs were guided to merely provide information in reaction to enquiries raised by the healthcare worker, with specific directives not to divulge any supplementary information on their own accord. The SPs were allowed to appear using their own identities to minimise the probability of being discovered, as all patients were required to present their own identity document after arrival at the clinic. After consultation with the healthcare worker, and within an hour after exiting the consultation, the SP completed a score sheet with questions based on the consultation. Previous work (Das et al., 2015) has validated SP recall under these circumstances, and found only minor discrepancies relative to recordings of clinical consultations.

Although the authentication study confirms the trustworthiness of the method, it is acknowledged that this may differ based on a particular case. Despite the attractiveness of using voice recordings to corroborate SP recall, the study could not use them due to ethical issues regarding recording of healthcare worker interactions. To compensate for voice recordings, quality control methods were employed, with SP motivation and recall scrutinised before recruitment took place (Christian et al., 2018).

The SP instrument was paired with interviews of RPs which were conducted after the SP consultations were concluded within the same facilities. This allowed for comparison of RPs' satisfaction with the quality of care to those of SPs at the same facilities. As in Leonard (2008), it was understood that satisfaction and quality of care may be simultaneously produced. The signalling model, explained earlier, fails to accommodate the simultaneity in the production of satisfaction and quality as it simply considers satisfaction as an indicator of quality. A patient may

be dissatisfied although the quality of care is excellent, simply because the patient was not cured. Thus, satisfaction may be a poor indicator of quality. The disparity in the quality of care provided by a healthcare facility is determined by a patient's sickness and characteristics which also affect patients' satisfaction. This factor in the concurrent production of patient satisfaction and quality is a problem which the signalling theories fail to recognise. Therefore, in comparing the variation in satisfaction and nurses' compliance with clinical guidelines during consultation at the same facility, it is not simple to recognise variation in satisfaction that emanate from changes in quality from changes in satisfaction attributed to subjectivity, different expectations, or interaction between sickness and patient characteristics and quality (Leonard, 2008). However, by pairing and comparing the two instruments (SPs and PEIs) variation in satisfaction across individuals and different groups (SPs and RPs) was identified.

2.7.3 Instruments and Data Collection

(a) Screening instruments for three different health areas

Patient scripts and checklists for the SPs and PEIs were created using publicly available tools from an international SP manual (Chan et al., 2018), local screening guidelines (National Department of Health, 2012, 2014), the tuberculosis guidelines (National Department of Health, 2017), the hypertension guidelines (Cornick, 2014) and best clinical practices. Provincial variation in guidelines was also considered. Effort was made to ensure that the score sheet, firstly, captured the most indispensable elements of the clinical interaction to reduce recall bias and then only asked more detailed questions about the interaction.

The scripts underwent various quality assurance processes, including being reviewed by PHC providers, clinical professionals and public health experts and programme managers for each of the three clinical areas in both provinces. SP scripts were then tested at five PHC facilities in Cape Town in 2015 (n= 39), while those for PEIs were piloted in Cape Town in 2016. As a result of pilot findings further refinement of the instruments took place and these were shared with appropriate participants for another round of review.

(b) Data Collection

The project roll-out in the two provinces took place in 2016, starting in Cape Town and then proceeding to Buffalo City, taking ten months to complete. The PEIs were started in October 2016 in Buffalo City, thereafter they were conducted in Cape Town. A sample size of 480 patient-facility encounters for SPs was estimated, since four SPs per each clinical area would visit 40 facilities in both provinces. For PEIs, a sample size of 2 000 patient interviews were assumed,

based on planned visits to 40 facilities by five fieldworkers for ten days. These visits were planned based on assumptions of how many RPs could be interviewed in a day.

Each SP was provided with an official letter, which he/she could present in case of being uncovered as a concealed fieldworker. The letter clarified that the SP formed part of a study approved by the respective provincial department of health. In addition, the PEI fieldworkers were provided with an official letter to present at each clinic before interviewing patients. Moreover, the fieldwork manager called each facility manager to set an appointment for the interviews prior to the actual interviews.

In the cases of PEIs, these were conducted as patients were leaving the clinic after consultation with the health workers. To keep track of data capturing and trustworthiness, weekly debriefing sessions were conducted with the SPs, and later with the PEI fieldworkers where scoresheets were audited.

For the SP interactions, the realised sample size was reduced from 464 to 376 (81 percent) analysable interactions (139 for contraception, 143 for TB and 94 for hypertension). 1 064 PEIs were done in both provinces. The anticipated sample of 2 000 could not be met due to some patients declining to participate as they were in a hurry to get home, and in some instances, patients came for other health conditions besides those in the study. Out of the 1 064 RP visits only 497 (46.7 percent) were comparable to the visits included in the standardised patient dataset and therefore, were considered as analysable visits (321 contraception visits, 116 hypertension visits, and 60 tuberculosis visits). The remainder of visits consisted of instances where patients merely collected medications and did not have a complete clinical interaction.

2.7.4 Data analysis

The data was examined using univariate, bivariate and multivariate methods. To determine whether two variables are related, bivariate analysis should be used (Vaus, 2002). The chi-square (χ^2) is a test that is frequently used in the field of social science to establish the statistical significance of the difference between two variables (Babbie, 2013). Statistical differences were identified in cross-tabulations between non-compliance and compliance, in adherence with clinical quality measures through the chi-square test (χ^2). This was done for both SPs and RPs.

Linear probability models[10] (LPMs) (Wooldridge, 2016) were then used for the multivariate analysis to estimate the relationship and impact between reported satisfaction and explanatory variables (clinical quality variables, demographic variables, socioeconomic variables).

2.8 ETHICAL CONSIDERATIONS AND APPROVAL

Ethical clearance for the study (approval #HS10964) was received from the Humanities Research Ethics Committee (HREC) of Stellenbosch University, a registered health research ethics committee. Written permission was obtained from provincial health research authorities for both provinces, while clinics in the metropolitan areas were informed of possible SP visits during a given period.

More details on ethical considerations, in terms of both the SP and PEI parts of the study, are provided below.

2.8.1 SP component:

Ethics can be a vital concern with SP work, but researchers can benefit from lessons learnt from previous studies. Ethical concerns include the possibility that the SP is subjected to risks of being detected and the issue of cover-up and dishonesty to the nursing staff. The SPs' risk of detection were reduced through training and preparation, and by deliberately selecting scenarios that do not involve intrusive clinical examinations. Scripts also included excuses that can be used to prevent further examinations and to exit the consultation if required.

Concealment in presenting SP differentiates this part of the study from other traditional surveys. Concealed research is "covert" research and is allowed during specific conditions, if it is fundamental to the kind of research that is carried out, such as, if overt research will weaken the research objective (Van Niekerk, 2014). Unlike in deceptive research, in the case of concealed or covert research, participants are made aware that they will be researched at some point (Van Niekerk, 2014).

2.8.2 PEI component:

Each facility manager at participating facilities was informed about the PEIs and the purpose thereof. A written consent form was administered to each patient before the commencement of the interview and the fieldworker explained the purpose of the interviews, and the ability of the patient to exit at any stage of the interview should he or she wish.

[10] LPMs are subject to the problem of heteroskedasticity (Greene, 2012), but according to Angrist and Pischke (2008), this is expected to result in comparatively little influence on the results. Moreover, LPMs are easy to estimate and interpret compared to probits (Wooldridge, 2016).

2.9 RESULTS

2.9.1 Sample and respondent characteristics

Table A1-2 provides summary statistics for the RP and SP samples respectively. The mean results for categorical variables are interpreted as percentages of the sample.

(a) Patient characteristics for RPs

Table A1-2 shows that substantially more females (79 percent) and Black respondents (79 percent) formed part of the PEI sample. The high proportion of females in the sample may reflect potentially higher demand for health amongst women due to pregnancy, sexual and reproductive care needs. The provincial composition of patients was not evenly distributed with only 32 percent from the Western Cape and 68 percent from the Eastern Cape. The average age of patients was 35 years old for the total RP sample. It is also important to highlight that half of the RPs (50 percent) did not complete the secondary level of education, and only 13 percent had a tertiary qualification.

(b) Patient characteristics for SPs

Contrary to the RPs, the SP sample of visits (Table A1-2) consisted of a relatively lower number of visits conducted by females (28 percent), but the proportion of visits by Black SPs (75 percent) was almost the same as in the RP sample. Although the provincial distribution of respondents was almost equal, the Western Cape participation (47 percent) was slightly lower than the Eastern Cape. Regarding age, the SP sample comprised of relatively younger respondents with an average age of 33 years old, this was slightly less than the average age reported in the RP sample.

Contrary to the RP sample, the SP sample comprised of more respondents who had tertiary qualifications (51 percent), with only 22 percent having no secondary education. In terms of socioeconomic status, in relative terms SPs were of a slightly higher socioeconomic status with 66 percent and 43 percent, respectively, indicating that the household in which they reside owns a satellite dish and motor vehicles, relative to only 47 percent and 35 percent of RPs who reported having access to the same items.

2.9.2 Reported satisfaction across various satisfaction categories

The datasets comprised various satisfaction variables, which include: satisfaction with general care of the healthcare facility, satisfaction with the way staff welcomed and greeted patients, satisfaction with the level of privacy, satisfaction with the general attitude of the healthcare workers, and satisfaction with cleanliness of the healthcare facility.

Both groups of patients, SPs and RPs, were asked to indicate their level of satisfaction for various satisfaction questions. The satisfaction questions were asked using a Likert-type scale with possible satisfaction ratings varying from 1 (the highest) to 5 (the lowest). A binary variable out of the satisfaction variable was created, so that there are only two options, namely, 1 for satisfied patients, and 0 for dissatisfied patients. Categories were combined for very satisfied and somewhat satisfied into binary option 1, the neutral, somewhat dissatisfied and very dissatisfied categories were combined into option 0. The reason for including the neutral into the 0 coding is due to it being slightly negative in nature (shows the absence of a positive response) and as such, it was separated from the positive responses. More than 70 percent of RPs indicated that they were either "satisfied" or "very satisfied" (see Table 2-1), a finding that is consistent with standard literature, being that there is a large prevalence of reported satisfaction (Das and Sohnesen, 2006; Evans and Welander Tärneberg, 2017). However, a significantly lower proportion of SPs (between 50 and 65 percent) reported being satisfied or very satisfied for the satisfaction indicators.

Table 2-1: Overall percentage of satisfied per satisfaction indicators (standard errors in parentheses)

Interview question	*SP (n=376)*	*RP (n=497)*
How satisfied with care you received at the facility?	0.52 (0.258)	0.79 (0.018)
How satisfied with the way staff greeted and welcomed you?	0.52 (0.258)	0.79 (0.018)
How satisfied with cleanliness?	0.58 (0.255)	0.75 (0.019)
How satisfied with the general attitude?	0.63 (0.249)	0.76 (0.019)
How satisfied with the level of privacy	0.61 (0.252)	0.84 (0.016)

Note: Answers summarised for participants who indicated an answer to the question.

Source: Author's own calculation from the datasets

2.9.3 Reported satisfaction with general care of healthcare provider

The question based on satisfaction with the general care at the healthcare provider was selected as the satisfaction variable which would be used for further analysis in examining the relationship with clinical quality, as it best captures overall visit satisfaction. Figure 2-3 shows the percentage distribution of satisfaction from very satisfied to very dissatisfied, based on contraception and tuberculosis. It is important to note that a higher proportion of RPs in Figure 2-3 (b) reported being very satisfied compared to the SPs in Figure 2-3 (a).

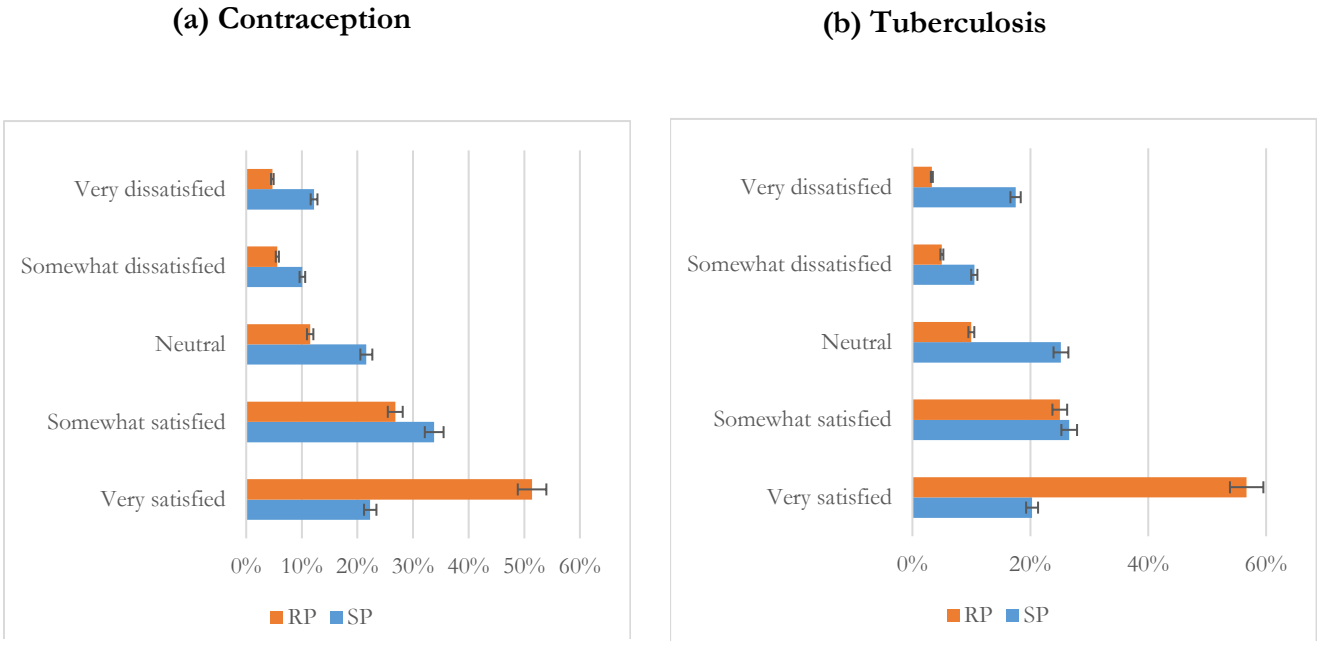


Figure 2-3: Reported satisfaction per clinical area for SPs and RPs

Sources: SP and RP datasets

2.9.4 Patient scores on clinical quality measures

Below is a description of scores of the RPs and SPs for clinical quality measures for the three health areas.

(a) Contraception quality measures

The percentage of analysable[11] contraception visits for RPs was only 16 percent (54 patients) of the total contraception visits. Most of the visits for contraception were for the collection of medication (n=275) and other visits were for check-ups (n=9). The RPs reported higher scores for almost all the contraception quality measures. For instance, about 88 percent of RPs reported that healthcare facilities complied with the quality measure requiring explanation of the various contraception options to patients. In addition, approximately 85 percent of RPs reported adherence with the quality measure that a urine pregnancy test should be offered at a contraception consultation to eliminate the possibility of pregnancy. It was only in two quality measures (asking family history questions and advice about life circumstances) in which a relatively lower proportion of RPs (compared to SPs) reported adherence by the healthcare facilities. For RPs, these scores were 43 percent and 41 percent, respectively.

[11] Analysable contraception patients are those patients who indicated that they came for consultation. These excludes patients who came to collect medication and those who visited the facility for medical check-up.

The number of contraception visits was 139, and this constituted almost 40 percent of total visits in the SP sample. Contrary to the RPs, the SPs reported lower scores for almost all the contraception quality measures. For instance, only 28 percent of SPs reported that healthcare facilities complied with the quality measure in which a general question on life circumstances was asked of patients. In addition, a mere 44 percent of RPs reported compliance with the quality measure in which a urine pregnancy test was done. It is important to understand that urine testing should be conducted to determine if a woman is pregnant or not.

(b) Hypertension quality measures (RP):

There were 116 analysable hypertension visits for RPs that were carried out (Figure A1-1). Table 2-4 also shows higher scores reported by RPs for all the hypertension quality measures, except for counselling patients on the use of alcohol. In almost all visits, RPs (99 percent) reported compliance with the hypertension quality measure, such that facilities should offer a blood pressure test to patients, meaning that a blood pressure measurement was conducted. The clinical quality measures in which the health facilities provided counselling on smoking and alcohol also commanded high scores among RPs, with 81 percent reported for both indicators.

As mentioned earlier, there were 94 analysable hypertension visits for SPs that were carried out (Table A1-1).

SPs reported lower scores for all the hypertension quality measures. Only 21 percent and 18 percent of SPs reported adherence with the hypertension quality measure that requires facilities to provide counselling on smoking and alcohol use. Even in terms of the requirement that patients should be asked whether they smoke, only 24 percent of SPs reported that the facilities complied with this quality measure (Table A1-3).

(c) Tuberculosis quality measures (RP):

The analysable visit for tuberculosis constituted just more than 12.1 percent of the total RP visits at 60 visits (Figure A1-1). Similar to hypertension and contraception, RPs reported higher scores for all TB quality measures. In all visits, 93 percent and 88 percent of RPs reported compliance with quality measures in which the facilities asked about the duration of cough and night sweats respectively (Table A1-4).

For tuberculosis, the analysable visits constituted approximately 38 percent of the total SP visits at 143 visits (Table A1-1). As in the other health areas, SPs reported lower scores than RPs for all TB quality measures, except for the quality measure in which health facilities asked about the duration of coughing. In all visits, only 47 percent and 59 percent of SPs reported compliance with

quality measures in which the facilities offered HIV testing and enquired about night sweats respectively (Table A1-3).

2.9.5 Adherence to patient consultation guidelines

Significance of association was then tested for between reported satisfaction and reported healthcare providers' adherence or non-adherence with selected clinical quality variables for each of the three health conditions, namely, contraception, tuberculosis and hypertension. For both datasets, SPs and RPs, adherence was coded as a binary variable, consisting of a yes or no option.

For any clinical encounter in which the SP complained of symptoms of hypertension and tuberculosis or sought advice on contraception, the SP completed a score sheet based on national protocol for each of the clinical areas immediately after the consultation. In the score sheet, the SP answered questions based on the consultation with the healthcare worker, thereby tracking whether the healthcare worker followed the protocol. The national protocols specify several medical history-related questions, physical examination procedures and health education guidelines (National Department of Health, 2012).

(a) History-taking clinical quality measures

Table 2-2 provides a comparison between SPs and RPs' reported satisfaction on adherence and non-adherence of healthcare providers regarding contraception history-taking questions and health education guidelines. Table 2-2 suggests that SP's experience with history-taking clinical measures was highly associated with patient satisfaction. For instance, for the history-taking question there was a large and statistically significant difference (71.4 percent vs. 49.5 percent; $p<0.05$) between SPs who reported being satisfied in visits where there was adherence relative to non-adherence, in terms of this guideline. On the other hand, on the same question there was also a statistically significant difference, although with a smaller difference (84.6 percent vs 74.9 percent; $p<0.05$), for reporting being satisfied between adherence and non-adherence among RPs (see Table 2-2).

There was also a statistically significant difference in the expected direction between reporting being satisfied relative to adherence and non-adherence among SPs in the history-taking question, in which the healthcare provider asks and advises on sexual life circumstances (71.4 percent vs. 49.5 percent; $p < 0.05$). SPs underwent rigorous training and were educated on what the healthcare providers ought to do during consultations. Therefore, it is not unrealistic to assume that their assessments of clinical quality are more objective relative to those of RPs.

The symptoms of tuberculosis as described in the TB guidelines include; a persistent cough of 2 weeks or more, fever for more than 2 weeks, night sweats, and unexplained weight loss. On the history-taking questions about night sweats, there was also a statistically significant difference in the expected direction between adherence and non-adherence among satisfied SPs for night sweats (64.3 percent vs. 20.7 percent; $p < 0.01$) (Table 2-2(a)). Among RPs, there was a statistically significant difference between adherence and non-adherence for asking about the night sweats question (84.3 percent vs. 57.1 percent; $p < 0.1$) (Table 2-2(b)). No statistically significant difference in satisfaction relative to adherence and non-adherence was found on history-taking measure in which questions were asked about life circumstances that could affect ability to comply with a chosen contraception method.

Table 2-2: Percentage of respondents who reported being satisfied with general care relative to adherence vs. non-adherence visits for history-taking quality measures (family planning and TB)

(a) SP

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Healthcare worker asked about own medical history (FP)	139	48 (49.5%)	30 (71.4%)	0.02**
Healthcare worker asked about life circumstances (FP)	139	48 (49.5%)	30 (71.4%)	0.02**
The healthcare worker asked about night sweats (TB)	142	12 (20.7%)	54 (64.3%)	0.00***

(b) RP

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Healthcare worker asked about own medical history (FP)	321	158 (74.9%)	93 (84.6%)	0.04**
Healthcare worker asked about life circumstances (FP)	318	169 (77.2%)	79 (79.8%)	0.60
The healthcare worker asked about night sweats (TB)	58	4 (57.1%)	43 (84.3%)	0.09*

Note: * p<.1, ** p<.05, *** p<.01

Source: Author's own calculation from the datasets

(b) Health education quality measures

As with history-taking quality measures, health education quality measures for contraception also showed statistically significant differences in terms of adherence versus non-adherence and reported satisfaction for both SPs and RPs. There was a statistically significant difference in the expected direction between reporting being satisfied, relative to adherence and non-adherence visits among SPs for the following quality measures: (1) in which the healthcare provider explained various contraception methods (71.9 percent vs. 32.7 percent; $p < 0.01$), and (2) in which the healthcare provider explained the benefits and side-effects of using each contraception method (80.3 percent vs. 33.3 percent; $p < 0.01$) (see Table 2-3 (a)).

For RPs, statistically significant differences were found for patients reporting being satisfied in visits for which there were protocol adherence relative to non-adherence. This statistical difference was found for the quality measures requiring an explanation by the healthcare provider of different contraception methods, (82.6 percent vs. 57.1 percent; $p < 0.01$) and the benefits and side-effects of different contraceptive methods (87.3 percent vs. 62.3 percent; $p < 0.01$) (see Table 2-3 (b)).

In the case of TB, for the health education measure of explaining the importance of returning to clinic for results, there was a statistically significant difference (100.0 percent vs. 41.1 percent; $p < 0.01$) between adherence and non-adherence among SPs. However, on the same question there was no statistically significant difference between adherence and non-adherence among RPs.

During hypertension visits, it is required that the healthcare provider advises patients about diet, exercise, smoking and alcohol. For SPs, statistically significant differences for reported satisfaction between adherence and non-adherence visits was found for all health education quality measures as indicated in Table 2-4 (a). However, according to Table 2-4 (b) there was no statistically significant differences between satisfaction reported for adherence and non-adherence visits among RPs.

Table 2-3: Percentage of respondents who reported being satisfied with general care relative to adherence vs. non-adherence visits for health education measures (FP and TB)

(a) SP

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Healthcare worker explained all or most contraception options (FP)	137	18 (32.7%)	59 (71.9%)	0.00***
Healthcare worker explained advantages and disadvantages of contraception options (FP)	138	24 (33.3%)	53 (80.3%)	0.00***
The healthcare worker explained the importance of returning to the clinic to get your results (TB)	139	51 (41.1%)	15 (100.0%)	0.00***

(b) RP

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Healthcare worker explained all or most contraception options (FP)	309	32 (57.1%)	209 (82.6%)	0.00***
Healthcare worker explained advantages and disadvantages of contraception options (FP)	311	66 (62.3%)	179 (87.3%)	0.00***
The healthcare worker explained the importance of returning to the clinic to get your results (TB)	59	6 (85.7%)	43 (82.7%)	0.84

Note: * p<.1, ** p<.05, *** p<.01

Source: Author's own calculations from the datasets

Table 2-4: Percentage of respondents who reported being satisfied with general care relative to adherence vs. non-adherence visits for health education measures (BP)

(a) SP (n = 94)

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Healthcare worker advised on diet (BP)	89	18 (40.9%)	34 (75.5%)	0.00***
Healthcare worker advised on exercise (BP)	89	28 (44.4%)	244(92.3%)	0.00***
Healthcare worker advised on smoking (BP)	90	35 (49.3%)	17 (89.5%)	0.00***
The healthcare worker advised on alcohol use (BP)	90	36 (48.6%)	15 (93.8%)	0.00***

(b) RP (n = 79)

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Healthcare worker advised on diet (BP)	115	52 (80.40	38 (76.0%)	0.61
Healthcare worker advised on exercise (BP)	107	67 (76.1%)	15 (78.9%)	0.79
Healthcare worker advised on smoking (BP)	111	58 (76.3%)	28 (80.0%)	0.67
The healthcare worker advised on alcohol use (BP)	107	58 (81.7%)	26 (72.2%)	0.26

Note: * p<.1, ** p<.05, *** p<.01

Source: Author's own calculations from the datasets

(c) Medical examination procedures

Since South Africa has one of the highest rates of HIV/AIDS prevalence in the world, screening patients for HIV has become a priority for new patients who visit health facilities. For instance, HIV tests for patients with unknown HIV status or who have not tested in the previous year are

part of baseline evaluation for TB patients (National Department of Health, 2014). This extends to other health conditions, such as contraception as contraception is clearly a healthcare area for patients who have a higher risk profile due to their sexually active nature. Other medical examinations that are important include: urine pregnancy, blood pressure and urine dipstick tests. In the case of medical examinations that were required to be conducted for SPs, statistically significant differences for reported satisfaction between adherence and non-adherence visits was found for blood pressure testing (59.6 percent vs. 0.0 percent; $p<0.01$), HIV testing for both contraception (80.0 percent vs. 49.5 percent; $p<0.00$) and TB (63.6 percent vs. 33.8 percent; $p<0.00$), and none for the other tests, as indicated in Table 2-5 (a). However, for RPs there was no statistical significance between reporting being satisfied relative to adherence and non-adherence visits for all the tests conducted, as shown in Table 2-5 (b).

Table 2-5: Percentage of respondents who reported being satisfied with general care relative to adherence vs. non-adherence visits for medical examinations

(a) SP – FP (n = 139); TB (n = 143); BP (n = 101)

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Urine pregnancy test (FP)	139	43 (55.8%)	35 (56.5%)	0.94
HIV test offered (FP)	139	54 (49.5%)	24 (80.0%)	0.00***
HIV test offered (TB)	140	25 (33.8%)	42 (63.6%)	0.00***
Blood pressure conducted (BP)	92	0 (0.0%)	53 (59.6%)	0.04***
Urine dipstick offered (BP)	92	36 (52.9%)	17 (70.8%)	0.13

(b) RP – FP (n = 325); TB (n = 60); BP (n = 79)

Clinical quality characteristics	N	Satisfaction relative to protocol non-adherence	Satisfaction relative to protocol adherence	P-value
Urine pregnancy test (FP)	317	148 (77.9%)	101 (79.5%)	0.73
HIV test offered (FP)	323	156 (76.9%)	97 (80.8%)	0.40
HIV test offered (TB)	60	8 (66.7%)	41 (85.4%)	0.13
Blood pressure conducted (BP)	74	4 (66.7%)	51 (75.0%)	0.65
Urine dipstick offered (BP)	78	50 (73.5%)	9 (90.0%)	0.26

Note: * p<.1, ** p<.05, *** p<.01

Source: Author's own calculations from the datasets

2.9.6 Regression analysis results

The results below are based on the regression analysis of the combined RP and SP datasets. Although data was collected from two separate samples, the datasets were combined to determine whether reported satisfaction is related to clinical quality and how these factors may be related. Moreover, the purpose of the regression analysis is to find out whether there are significant differences between RPs and SPs in reported satisfaction. In other words, it is necessary to

establish whether the training that the SPs obtained provided them with greater knowledge or higher expectations of the visits that may influence their satisfaction ratings in a negative manner.

The sample size limited the analysis and restricted the study to variables that were common to both, the standardised and patient-exit interview datasets. This prevented identification of correlation between reported satisfaction and excluded factors[12]. It is important to note that the results only show correlation and do not allow for conclusion of underlying relationships between reported satisfaction and clinical quality indicators.

Regressions were conducted per health area, namely, contraception, hypertension and tuberculosis. The dependent variable was patient satisfaction with the general care received at the health facility. The independent variables consisted of clinical quality variables in each health area. However, due to the small sample of this study and to avoid the problem of multicollinearity that arises with small sample sizes when controlling for multiple, and potentially related, variables, the relationship between reported satisfaction and each clinical quality variable was estimated separately. Age, education and three SES (socioeconomic status) related variables[13] were used as control variables.

In each clinical area regression, four different specifications were run. In specification 1, both the SP and the RP samples were included, plus a standardised patient (SP) dummy variable without any restrictions. In specification 2, both samples were included, and the SP dummy variable which was controlled for facility fixed effects. Specifications 3 and 4 were restricted to the SP sample and the RP respectively. For all the specifications, the sample was restricted to seen visits for SPs and seen visits for RPs, respectively.

Table 2-6 summarises the expected signs of coefficients and the rationale for the expected signs.

[12] For example, physical infrastructure.

[13] The SES related variables were the ownership of a fridge or a freezer, ownership of a satellite dish and ownership of a car or a van.

Table 2-6: Expected sign and rationale for variables included in regression analysis

Variable	Expected sign	Rationale
Possession of fridge or freezer	Positive	Having no fridge or freezer indicates relative poverty and vulnerability
Possession of satellite dish	Positive	Having no satellite dish indicates relative poverty and vulnerability
Education: Completed high school	Negative	Education provides access to knowledge and information. This can empower patients to be critical of services they receive. Education may also signal higher quality expectations due to education's correlation with income and potential access to private care.
Age	Positive	Older patients may have experience of what to expect about good healthcare from the facility. The older patients tend to be more critical of services received.
Standardised patient dummy	Negative	SPs were aware of protocol through training. They are thus, likely to be dissatisfied with poor clinical quality service.
Contraceptive clinical quality variables	Positive	It is expected that patients will be satisfied when health providers comply with various family planning clinical quality indicators, such as taking of medical history, explanation of contraception options, asking about life circumstances, doing urine pregnancy tests, explaining advantages and disadvantages of contraception options, and offering HIV tests.
Tuberculosis clinical quality variables	Positive	It is expected that patients will be satisfied when health providers comply with various tuberculosis clinical quality indicators, such as access to a mask, asking about duration of cough, offering HIV test, explaining importance of returning to clinic for results, asking about night sweats, asking about weight loss, asking to return if symptoms got worse, providing an appointment card with date to return to clinic.
Hypertension clinical quality variables	Positive	It is expected that patients will be satisfied when health providers comply with various hypertension clinical quality indicators, such as offering of blood test, offering of urine dipstick, asking about smoking, providing advice on diet, providing advice on exercise, providing advice on smoking, and providing advice on alcohol use.

Table **2-7** provides an analysis of correlation between patient-reported satisfaction and **history-taking quality variables**, controlling for age, education and SES. The first column represents the associations for the complete sample, including the SP dummy variable, while the second column includes fixed facility effects, and the SP dummy variable. Columns 3 and 4 are regressions showing SP and RP correlations, respectively. The first and third columns for medical history show that all patients are more satisfied with facilities that adhere more closely to protocols. Nevertheless, once facility fixed effects are included the relationship between patient satisfaction and the medical history quality measures becomes insignificant. For all the specifications, except for RPs, the clinical quality variable in which the healthcare provider advises the patient about life circumstances was significantly associated with patient satisfaction. Interestingly, SES and having completed secondary education are unrelated to satisfaction, while age is significant only for the SP specification (Table A1-3). In addition, the SP dummy coefficient is negative and significant in both columns 1 and 2, while the medical history coefficient for SP is positive and significant. The negative sign for the SP dummy seems to indicate that SPs have a more negative assessment of satisfaction relative to history-taking quality measures, meaning fewer SPs are satisfied about protocol adherence compared to RPs.

Table 2-7: History-taking quality measures (seen visits)

		Dependent variable:	Satisfaction with general care of visit	
Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Own medical history	0.137*** (0.044)	0.093* (0.052)	0.255*** (0.094)	0.096* (0.050)
SP dummy	-0.196*** (0.052)	-0.199*** (0.053)		
Observations	455	455	139	316
R-squared	0.077	0.253	0.111	0.024
Life circumstances (FP)	0.094** (0.046)	0.095** (0.047)	0.269*** (0.094)	0.031 (0.051)
SP dummy	-0.188*** (0.053)	-0.199*** (0.053)		
Observations	452	452	139	313
R-squared	0.065	0.253	0.116	0.014
Night sweats	0.416***(0.074)	0.380*** (0.082)	0.456*** (0.090)	0.327* (0.163)
SP dummy	-0.270*** (0.083)	-0.212* (0.093)		
Observations	184	184	126	58
R-squared	0.321	0.513	0.272	0.119

Each regression is a linear probability model of patient satisfaction (very satisfied and somewhat satisfied versus neutral, somewhat dissatisfied and very dissatisfied) on clinical quality variable. Age, education, ownership of a satellite dish and motor vehicle or bakkie are control variables. Column 1 represents the specification for the whole sample, including the SP dummy variable; column 2 represents the whole sample with fixed facility effects, including the SP dummy variable; and columns 3 and 4 represent restricted specifications for SP and RP samples respectively. Standard errors are reported in brackets. * Significance at 10% level, ** Significance at 5% level, *** Significance at 1% level.

The night sweat quality variable provides an interesting result, since even its coefficient for the RP is positive and statistically significant at a 10 percent level. Moreover, it is important to highlight that the association between the clinical quality variable for night sweats and satisfaction continues to hold even when unobserved variation in facilities has been accounted for. Enquiring about a night sweat during the consultation is associated with an increase in the probability of the RPs' reporting high visit satisfaction. Adherence to the quality measure of enquiring about night sweats is also associated with an increase in the probability of all patients reporting high satisfaction. This suggests that the processes of the facilities play a significant role in patient satisfaction. It is also important to note that no patient characteristic (age, education or SES) was statistically significant for almost all the specifications (Table A1-7). This seems to suggest that the significant relationship

between patient satisfaction and the quality measure for night sweats was not only observed and assessed by SPs to matter, but that it also held for RPs.

Table 2-8 shows results of regressions between patient-reported satisfaction and health-education quality variables, while controlling for patient characteristics. In five out of seven regressions, the coefficients of quality variables remained significant in each specification with facility fixed effects. This shows that for health-education quality measures this association proves true even when controlling for variation in unobserved facility characteristics. In an earlier study, Das and Sohnesen (2006) found that there was a reduction in the estimated impact of effort on satisfaction after controlling for unobserved doctor characteristics. The coefficients for the SP dummy were negative and insignificant for most (four out of six) health-education quality variable regressions. This suggests that SPs and RPs weigh most health education measures in a similar manner relative to satisfaction. The coefficients for the RP specifications are positive and insignificant in all quality variables, except for the two specifications where, (1) the healthcare provider explained advantages and disadvantages of contraception options; and (2) the healthcare provider explained different contraception options.

In most of the health-education quality variables, patient characteristics such as age, education and SES do not influence satisfaction among RPs, except for two quality variables in which the healthcare provider explained the importance of returning to the clinic (Table A1-13) and advised on alcohol use (Table A1-12). In a regression in which the importance of returning to the clinic was the main explanatory variable, an increase in secondary education resulted in a decrease in the probability of RPs reporting high satisfaction (Table A1-13). In another regression, in which receiving advice on alcohol use was the main explanatory variable, having secondary education led to a decrease in RPs' probability of reporting high satisfaction (Table A1-12). These results correspond to findings that highly educated patients report lower satisfaction than less educated ones (Harutyunyan et al., 2010; Findik et al., 2010; Danielson et al., 2007).

In three health-education quality variable regressions, coefficients for age and tertiary education were negative and significant among the SPs. This indicates that satisfaction levels were lower for younger SPs, and those who had tertiary education were less satisfied relative to compliance with these quality measures than those who had lower education. This mirrors assertions that age is one of the most influential sociodemographic factors in satisfaction (Falhourly et al., 1997; Lecouturier et al., 1999; Ahmed et al., 2011; Dulgerler et al., 2012) and that higher educated patients, report lower satisfaction (Da Costa et al., 1999; Danielsen et al., 2007; Findik et al., 2010). It is surprising that coefficients for age and education among RPs were not significant in most regressions of

health-education quality measures. A plausible explanation for this is that health education awareness that was provided to SPs was not provided to RPs. This suggests that health education, rather than just general education, may be the factor that matters more for patient satisfaction.

Table 2-8: Health-education quality measures (seen visits)

		Dependent variable:	Satisfaction with general care of visit	
Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Explanation of contraception	0.313*** (0.048)	0.254*** (0.049)	0.475*** (0.083)	0.244*** (0.061)
SP dummy	-0.116** (0.053)	-0.134** (0.111)		
Observations	441	441	137	304
R-squared	0.139	0.296	0.257	0.062
Explaining advantages and	0.330*** (0.040)	0.283*** (0.042)	0.510*** (0.072)	0.254*** (0.047)
SP dummy	-0.155*** (0.040)	-0.177***(0.051)		
Observations	444	444	138	306
R-squared	0.186	0.338	0.316	0.098
Receiving advice on diet (BP)	0.179** (0.070)	0.263*** (0.081)	0.316** (0.126)	0.039 (0.083)
SP dummy	-0.014 (0.094)	-0.062 (0.101)		
Observations	187	187	70	117
R-squared	0.169	0.373	0.174	0.067
Receiving advice on smoking	0.220*** (0.074)	0.257** (0.091)	0.430** (0.161)	0.086 (0.082)
SP dummy	-0.098 (0.098)	-0.040 (0.108)		
Observations	188	188	72	116
R-squared	0.183	0.369	0.171	0.079
Received advice on alcohol (BP)	0.213*** (0.075)	0.269*** (0.090)	0.475*** (0.163)	0.051 (0.084)
SP dummy	-0.049 (0.105)	0.081 (0.115)		
Observations	182	182	71	111
R-squared	0.187	0.409	0.183	0.089
Importance of returning to clinic	0.255** (0.126)	0.203 (0.135)	0.477*** (0.177)	-0.066 (0.163)
SP dummy	-0.234 (0.134)	-0.254* (0.143)		
Observations	183	183	124	59
R-squared	0.226	0.451	0.161	0.088

Each regression is a linear probability model of patient satisfaction (very satisfied and somewhat satisfied vs. neutral, somewhat dissatisfied and very dissatisfied) on clinical quality variable. Age, education, satellite dish and motor vehicle or bakkie are control variables. Column 1 represents the specification for the whole sample including the SP dummy variable; column 2 represents the whole sample with fixed facility effects including the SP dummy variable; and columns 3 and 4 represent restricted specifications for SP and RP samples respectively. Standard errors are reported in brackets. * Significance at 10% level, ** Significance at 5% level, *** Significance at 1% level.

Results of regressions between patient-reported satisfaction and medical examination quality variables are shown in Table 2-9 below. A finding which should be noted is the significant association between patient satisfaction and HIV testing among both contraception and TB RPs among SPs. The significant association among SPs appear to be driven by the training they received before they visited the facilities. It is concerning that there is no significant correlation between HIV testing and satisfaction among RPs. HIV testing is very important for prompt introduction of HIV treatment for those who are diagnosed with the virus (Chimbindi, Barnighausen, and Newell, 2012). Although many people are aware of HIV testing, other studies in sub-Saharan Africa have shown that there is still low perceived risk of infection, distress about test results, and being diagnosed with HIV is stigmatised (Abdurahman, Seyoum, Oljira, and Weldegebreal, 2015; Jürgensen, Tuba, Fylkesnes, and Blystad, 2012; Wanyenze et al., 2008).

Table 2-9: Medical examination tests (seen visits)

		Dependent variable:	Satisfaction with general care of visit	
Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Urine pregnancy test (FP)	0.011 (0.042)	0.021 (0.051)	0.003 (0.089)	0.009 (0.048)
SP dummy	-0.209*** (0.053)	-0.218*** (0.053)		
Observations	447	447	139	308
R-squared	0.059	0.250	0.062	0.015
HIV test offered (FP)	0.109** (0.045)	0.027 (0.053)	0.309*** (0.099)	0.044 (0.048)
SP dummy	-0.186 (0.053)	-0.206*** (0.054)		
Observations	453	453	139	314
R-squared	0.071	0.249	0.121	0.016
HIV test offered (TB)	0.268*** (0.074)	0.156 (0.094)	0.272*** (0.092)	0.282* (0.137)
SP dummy	-0.374*** (0.081)	-0.365*** (0.091)		
Observations	186	186	126	60
R-squared	0.258	0.440	0.193	0.114
Offering urine dipstick (BP)	0.067 (0.073)	-0.059 (0.099)	0.156 (0.140)	0.014 (0.083)
SP dummy	-0.212** (0.093)	-0.250** (0.104)		
Observations	182	182	73	109
R-squared	0.164	0.355	0.093	0.063
Blood pressure offered (BP)	0.709** (0.288)	0.825*** (0.290)	0.617 (0.507)	0.852** (0.337)
SP dummy	-0.290*** (0.083)	-0.263** (0.090)		
Observations	195	195	74	121
R-squared	0.181	0.378	0.099	0.094

Each regression is a linear probability model of patient satisfaction (very satisfied and somewhat satisfied vs. neutral, somewhat dissatisfied and very dissatisfied) on clinical quality variable. Age, education, satellite dish and motor vehicle or bakkie are control variables. Column 1 represents the specification for the whole sample including the SP dummy variable; column 2 represents the whole sample with fixed facility effects including the SP dummy variable; and columns 3 and 4 represent restricted specifications for SP and RP samples respectively. Standard errors are reported in brackets. * Significance at 10% level, ** Significance at 5% level, *** Significance at 1% level.

2.10 CONCLUSION

This study examined the correlation between patient satisfaction and clinical quality, with a view to determine what such correlation or lack thereof may suggest about a patients' ability to read signals about the quality of providers' care. Signalling theory is a useful tool that can explain behaviour between parties that have access to different information. On the one hand, the healthcare provider (signaller) can signal quality to the patients (receiver) through medical qualifications of staff. However, as stated earlier, the medical qualification may fail to signal quality if the employer is not able to monitor the healthcare provider's performance. On the other hand, if the RPs (recipients) experience low quality of care, it would be expected that they would rate their satisfaction lower. However, if they report high satisfaction and low quality, this might indicate the existence of information asymmetries, either a lack of credible information signals on provider quality or an inability of RPs to interpret the signals. This would imply that the patients are unable to fully use the "short route" to accountability to actively monitor healthcare delivery. However, there are signs that patients are able to discern higher quality service from lower quality service and this holds potential for empowering patients to further act on this information.

Correlations were examined between satisfaction and three sets of clinical quality measures (history-taking quality measures, health-education quality measures and medical examination tests) which account for consultations that occur in public PHC facilities for contraception, hypertension and tuberculosis. For some of these clinical quality measures, evidence suggests an association with patient satisfaction. This is aligned with existing evidence that patient satisfaction is associated with higher provider knowledge or effort in Paraguay (Das and Sohneson, 2006) and Nigeria (Evans and Welander-Tarneberg, 2017). From the results, it seems patients are able to read signals regarding the quality of providers' care and can reflect this in their visit satisfaction scores, as there was a positive and significant correlation between satisfaction and the clinical quality variables. This finding is important as it indicates the rejection of the hypothesis that patients are ignorant about the quality of healthcare providers.

Although there is some correlation between patient satisfaction and clinical quality measures, such correlation may not be construed to mean that medical qualifications of healthcare providers are a true quality signal. The findings revealed that in most of the clinical quality measures, there was no significant association between RPs' experience of care and satisfaction. In South Africa, the medical qualifications of doctors and nurses may be failing to serve as a true signal of quality due to the existence of a principal agent problem between the employers and the employees. Several authors (Mathibe et al., 2015; Rispel et al., 2018) have identified challenges of weak and

unsuccessful operational management in all health facilities types and provincial health departments in South Africa. In some instances, managers have been promoted to senior positions without having the necessary skills (Pillay, 2010). As a result, there was no effective monitoring and evaluation of healthcare service delivery. Finally, this points to a lack of accountability which ultimately leads to a failure of the public health system in fulfilling its constitutional service delivery mandate (Siddle, 2011).

However, in respect of SPs, there was a very strong association between almost all clinical quality indicators and satisfaction. This indicates that when patients are better informed about clinical quality, they are able to make proper assessments of quality of care in comparison to less-informed patients. This has great implications for social accountability, such that informed patients can compel health providers to enhance healthcare services (Leonard, 2014). As Leonard (2014) argued, policies that promote quality and signal the said quality to patients at the same time, have a tendency of attracting new patients rapidly, as opposed to those that focus solely on promoting quality

The implication of this study is to provide a greater need for policymakers to create awareness amongst patients based on the nature of healthcare protocols and the need for adherence to these protocols by healthcare providers. Once patients are empowered regarding what should be expected during a healthcare worker-patient interaction, patient satisfaction may become a purer and more reliable indicator of clinical quality. This could generate increased patient accountability among the healthcare workforce and may strengthen administrative accountability between health management and clinicians.

Future research should include private sector facilities for comparison and increase the sample size to include more facilities.

CHAPTER 3: "THE NURSE DIDN'T EVEN GREET ME.": COMPARING THE EVALUATION OF NON-CLINICAL HEALTHCARE QUALITY OF REAL AND ACTIVATED PATIENTS

ABSTRACT

Universal Health Coverage (UHC) does not only facilitate access to health services, but is more concerned with access to high-quality care. Poor experiences may deter patients from accessing care. There is evidence that clinical quality of care is instrumental in driving health outcomes, yet little is known about health systems responsiveness. The study is aimed at investigating the influence of non-clinical dimensions of care on patient satisfaction. This study describes interactions between two groups of patients (activated and non-activated patients) and primary healthcare workers at 39 public healthcare facilities in two metropolitan centres in two South African provinces. The analysis included 873 interactions using SPs and patients exit interviews respectively. All interactions were based on three health areas, namely, contraception, hypertension and tuberculosis. In both groups of patients, how satisfaction with overall care is related to patient responsiveness with non-clinical dimensions of care is described. Both activated patients (Odds ratio (OR) =2.72, 95 percent Confidence Interval (CI) 1.26 to 5.86) and non-activated patients (OR = 8.05, 95 percent CI 3.24 to 20.02) were reportedly likely to be responsive at being greeted and welcomed by facility staff. However, patients' perceptions of the general level of privacy at facilities (OR = 3.17, 95 percent CI 1.78 to 5.64) was significantly related to patient satisfaction only among the activated patients. Moreover, patient responsiveness regarding healthcare workers' understanding of patients' health problems (OR = 5.14, 95 percent CI 2.34 to 11.30) were significantly related to patient satisfaction only among the SPs. Informed patients are better equipped to assess the health system's responsiveness in healthcare provision. This finding is important given the need for improved accountability and clinical governance in the health system. Insights into responsiveness could guide broader efforts aimed at targeted education of primary healthcare users to strengthen the health systems and shape expectations for appropriate care and conduct.

3.1 INTRODUCTION

Universal Health Coverage (UHC) is not only about facilitating access to health services, more fundamentally, it has to do with access to high-quality care (Jha et al., 2016; Kruk, Ataguba, and Akweongo, 2020; Kruk et al., 2018). While South Africa has made tremendous strides in expanding access of care since 1994, the same cannot be said about quality of care (Burger and Christian, 2018; Gilson and McIntyre, 2007; Burger et al., 2019; Christian, Gerdtham, Hompashe, Smith, and Burger, 2018). Poor experiences of care may deter South African patients from accessing care (Nxumalo, Goudge, and Manderson, 2016). Quality of care is critical given South Africa's struggle with continuity of care and adherence to treatment by chronic patients (Fernandez-Lazaro et al., 2019).

Although there exists evidence that clinical quality of care is critical in determining health outcomes, the role of non-clinical aspects is not yet well understood (Hajjaj, Salek, Basra, and Finlay, 2010). The non-clinical dimensions of care are frequently drawn from the Donabedian framework of technical, process, and structural quality (Valentine et al., 2003). While technical quality is understood to encompass domains such as effectiveness, technical competence, and appropriateness, process quality captures (non-clinical) dimensions, such as respect, courtesy, choice, communication and autonomy (Valentine et al., 2003) These aspects may determine patients' willingness to return to facilities, and continue to engage in care (World Health Organization., 2016).

Evidence is presented based on the non-clinical dimensions of care from a comparison of two datasets: PEIs at PHC facilities with RPs and data from SP visits to the same type of facilities, the latter group of visits in turn provides a proxy for 'activated' or highly informed patient visits. Patient activation is defined as the willingness and ability of patients to follow autonomous actions when managing their health and care (Hibbard, Stockard, Mahoney, and Tusler, 2004). According to Hibbard and Greene (2013) there is a clear association between patient activation and individuals being younger, more educated and having private health insurance. However, in the South African public PHC where government fully funds patients' healthcare, when the healthcare provider offers poor service it is the government that determines if the provider should be closed or not. Such an arrangement assumes that patients are passive and not active in responding to the principal agent problem. Hence, the "short route" to accountability cannot effectively work to monitor and ultimately change service delivery. According to Malakoane, Heunis, Chikobvu, Kigozi, & Kruger (2020), the health system in the Free State was characterised by absence of hospital boards in many hospitals and weak or non-existent clinic committees that were mainly

appointed on a voluntary and ad hoc basis. The voluntary nature of appointment of clinic councils as opposed to hospital boards, who received stipends for attending meetings, has been a primary source of dissatisfaction among clinic council members for many years (Padarath & Friedman, 2008)

A comparison of data from these two sources creates understanding of whether the non-clinical dimensions of SP visits play a bigger role in determining satisfaction for RPs. It is hypothesised that SPs may attach less relative weight to the non-clinical dimensions of care than RPs given the emphasis placed on the clinical (technical) dimensions of care during their training. The comparison allows for an understanding of whether the non-technical dimensions of care continue or cease to matter once patients have been trained in understanding the importance of clinical (technical) dimensions of quality. This study is the first to utilise a combination of SPs and PEIs for non-clinical healthcare research in LMICs.

The data on non-clinical dimensions of care was collected across three different health conditions: contraception, hypertension and tuberculosis. However, given the focus on the experiences of care, data is combined for the three clinical areas, as patient experiences influenced by non-clinical dimensions of care should not necessarily systematically vary by clinical area.

In the following section, the data and methods used in this paper are discussed, alongside the analytical framework and study variables. Section 3 presents results, while Section 4 provides discussion and conclusion.

3.2 DATA AND METHODS

3.2.1 Data sources

Data on non-clinical quality dimensions of care were sourced from the same datasets, SP and RP datasets, which have been discussed in Chapter 2.

3.2.2 Analytical framework

The aim in conducting this analysis was to gain insight into the significance of non-clinical dimensions of care to SPs, and to determine if these dimensions continue to matter once patients have been trained about the importance of the clinical dimensions of care. Non-clinical dimensions of care, which are the focus of this study, are grounded in the concept of health service responsiveness (HSR) (Liabsuetrakul, Petmanee, Sanguanchua, and Oumudee, 2012; Valentine et al., 2003; World Health Organization, 2000). HSR includes eight domains: dignity, prompt attention, autonomy, confidentiality, choice of provider, clear communication, social support and basic amenities (Liabsuetrakul et al., 2012; Valentine et al., 2003). These domains are classified into

interpersonal domains; namely, dignity, autonomy, communication and confidentiality, (and structural domains; namely, quality of basic amenities, choice, access to social support networks and prompt attention) (Ebrahimipour et al., 2013). The datasets for SPs and RPs contain questions related to four of the eight domains: dignity, quality of basic amenities, confidentiality and effective communication.

According to Robone, Rice, and Smith (2011), health responsiveness encompasses attributes of human rights which include: respecting patients' autonomy and dignity and interpersonal aspects, for instance, the quality of basic amenities. The World Health Organisation described health systems responsiveness as a widespread health system objective, and a guide that can be utilised to evaluate the responsiveness of health system to the needs of citizens in non-health aspects, such as communication, autonomy and confidentiality (De Silva, 2000).

Patient satisfaction is described as an outcome measure of HSR, together with health outcomes and confidence in the health system (Larson, Sharma, Bohren, and Tunçalp, 2019). As such, patient satisfaction specifies whether or not the care offered corresponded with the needs and expectations of patients (Kruk, Gage, Arsenault, et al., 2018). The datasets of this study contain responses on overall visit satisfaction, and certain potential sub-components of satisfaction.

Empirical evidence (Bleich, Ozaltin, and Murray, 2009) indicates that patient characteristics, such as age, gender and education, can account for changes in HSR, aptitude to judge the quality of care obtained, and patients' approval of care. Moreover, patient's expectations and understandings of their encounters are affected by broader contexts within their families, community and society (Larson et al., 2019).

3.2.3 Study variables

Patient satisfaction was selected based on the overall healthcare at facilities visited as the dependent variable. Satisfaction was assessed through a question with five response categories: very satisfied, somewhat satisfied, neutral (neither satisfied nor dissatisfied), somewhat dissatisfied, and very dissatisfied. These categories were then classified into two options: satisfied (very satisfied, somewhat satisfied) and not satisfied (neutral, somewhat dissatisfied, and very dissatisfied). The neutral category (14.5 percent in the total sample, 18.9 percent in SPs, and 10.9 percent in RPs) was entered in the "not satisfied" option as patients (real or standardised) who answered that they were "neither satisfied nor dissatisfied", since they were not able to categorise a satisfactory response with the health services.

The study's independent variables were the non-clinical dimensions of healthcare, converted to a dichotomous scale (satisfied and not satisfied). HSR on non-clinical dimensions of care was

organised into four groups according to the conceptual framework of Larson et al. (2019) as follows (Table 3-1).

Table 3-1: Patient responsiveness with non-clinical dimensions of care

Domains	Non-clinical dimensions of care
Respect and dignity	Satisfaction with welcoming by staff at the facility
	Satisfaction with general attitude of healthcare staff at the facility
Quality of basic amenities	Satisfaction with cleanliness of the facility
Confidentiality	Satisfaction with the level of privacy
Effective communication	Understanding of patient's problem by healthcare workers
	Satisfaction with how well the healthcare worker explained the patient's health condition
	Asking of a question about previous illnesses/health conditions by healthcare workers (history taking)

The analysis also included the following patient sociodemographic covariates; sex (female, male); age; race; education (<matric, matric, >matric), region of residence (Eastern Cape Province and Western Cape Province) and asset variables (possession of a motor car or van, possession of a refrigerator or freezer and possession of a satellite dish).

3.2.4 Statistical analysis

Descriptive statistics were used to analyse patient characteristics and responsiveness within healthcare. In addition to some questions meant to capture the background information of respondents (for both SP and RP), other questions asked respondents to indicate their level of satisfaction in relation to the behaviour of healthcare workers during the clinical interaction.

A Pearson produced-moment correlation coefficient was estimated to measure the relationship in average patient satisfaction measures between the SP and RP datasets at facility level. A principal component analysis (PCA) was conducted and produced a reliability estimate (internal consistency) for the HSR. An exploratory PCA was used to identify the most important dimension of HSR and only included variables that had the highest factor loadings in our final PCA.

A bivariate analysis was conducted, including Chi-square tests, between the dependent variable (patient satisfaction) and each independent variable (patient responsiveness on non-clinical dimensions of care), with the intention of establishing statistical significance of the relationships between these variables. To statistically test the distinction between the non-clinical dimensions of care (IDV) and the satisfaction with overall care (DV), this research adopted the one-way analysis

of variance (ANOVA) to determine the difference of means. Both the Chi-square tests and one-way ANOVA tests were conducted at the visit level for both datasets.

Lastly, multivariate logistic regression was conducted to examine how patient satisfaction with overall care was related to HSR, with regards to the non-clinical dimensions of care. In each regression, four different models were run. In model 1, all the variables were included, including a standardised patient (SP) dummy variable without any restrictions. In model 2, all the variables were included with the SP dummy variable but controlled for facility fixed effects. The remaining two models were restricted to SPs and RPs respectively, with no SP dummy and no facility fixed effects. For all the models, the sample was restricted to seen visits only.

3.3 ETHICAL CONSIDERATIONS

Ethical clearance for the study (approval #HS10964) was received from the Humanities Research Ethics Committee (HREC) of Stellenbosch University, a registered health research ethics committee. Written permission was obtained from both provincial health research authorities, while clinics in the metropolitan areas were informed of possible SP visits and PEIs during a given period.

3.4 RESULTS

3.4.1 Baseline characteristics of the sample

The final combined dataset analysed consisted of 873 visits, of which 43 percent were from SPs and 57 percent were RPs (Table A2-1). Respondents/patients in the total sample were on average 34 years of age, and a large portion were female (57 percent), living in the Eastern Cape Province (62 percent) and Black African (77 percent).

Regarding the distribution of the SP sample, the average age of respondents was 33 years of age, and the majority were male (71 percent), staying in the Eastern Cape (54 percent), and Black African (75 percent). For the RPs, the age distribution was slightly higher than for SPs, at 35 years of age, and most respondents were female (79 percent), had the Eastern Cape as their province of residence (69 percent) and were Black African (79 percent). A large number of SPs had some type of tertiary qualification (52 percent), while half of the RPs did not attain matric (50 percent).

3.4.2 Patient satisfaction with overall care at facilities

Figure A2-2 shows the distribution of patients' satisfaction with overall care received at all the facilities visited. On average, a large proportion of all patients reported that they were very satisfied (40.3 percent) and somewhat satisfied (27.1 percent) with the care obtained. A significantly higher

number of RPs reported being very satisfied (52.7 percent) and somewhat satisfied (26.0 percent), relative to a lower number of SPs who indicated that they were very satisfied (24.2 percent) and somewhat satisfied (28.2 percent).

Out of 497 RPs, only 20 (4 percent) patients said they were very dissatisfied with the overall care at facilities. 34 patients (6.8 percent) indicated that they were somewhat dissatisfied with the quality of care. Fifty-two percent rated the quality as very satisfactory and 26 percent said the quality was somewhat satisfactory. The positivity of the patients does not in any way suggest that quality was very high, nor does it mean that the quality of care received was really satisfactory to the patients (Leonard, 2008). Table A2-2 shows the characteristics of the average satisfaction scores by whether they were rated as "very satisfactory" and "somewhat satisfactory". The table shows the mean levels, and the 10th and 90th percentile, of these distributions for each rating. Similarly, the 75th percentile of all visits was shown. Fewer RPs provided "very satisfactory" ratings as opposed to "somewhat satisfactory" ratings in being satisfied with welcoming and greeting, satisfied with cleanliness of the facility, satisfied with the general level of privacy and satisfied with the attitude of the staff.

As indicated in Figure A2-2, the SPs had a fewer number of visits in which they were very satisfied and somewhat satisfied than the RPs. The reason for the low number of visits in which SPs reported very satisfied and somewhat satisfied might be attributed to empowerment they received during their training on providers' clinical guidelines. The training allowed these fake patients to be well informed about what healthcare workers ought to do during provider-patient interaction, which was not the case for the RPs. Hence, they may have been more likely to be critical in their assessment of healthcare providers.

3.4.3 Relationship between average satisfaction among SPs and RPs at facility level

The Pearson r correlation results reveal a lack of correlation between average satisfaction levels at facility level of the two groups of patients, as seen in Table A2-19. The only positive significant correlation was found among average satisfaction with overall care between SPs and RPs, $r = .326$, $n = 39$, $p < .05$. Other significant positive correlations occurred within average satisfaction variables of the same group of patients. For example, among the SPs there was a significant positive association between average satisfaction with overall care and the average satisfaction with welcoming and greeting by facility staff, $r = .661$, $n = 39$, $p < .001$. The positive correlation results of the average satisfaction scores on overall care between the two groups of patients indicates an overlap between these two variables, indicating that either patients had overall similar real experiences at facility level or simply display the same reporting behaviour. However, other

correlation results imply that there was no overlap between the two groups of patients in terms of their experiences of the unique non-clinical dimensions of care.

The correlation between average satisfaction among SPs and RPs, and within each group of patients should be interpreted with caution due to "halo effects" that might be at play. Halo effects can be described as the impact of early interactions that people are exposed to on their later experiences (Berry, Deming, and Danaher, 2018). There is evidence that service elements that are not easy to evaluate are more predisposed to halo effects (Dagger, Danaher, Sweeney, and McColl-Kennedy, 2013; Van de Walle, 2018). The positive correlation between average satisfaction with overall care and average satisfaction with non-clinical dimensions of care among SPs and RPs, for instance, may be subject to halo effects. This shows that the overall impressions that SPs and RPs may have about the facility may bias their assessments of specific non-clinical dimensions of care.

3.4.4 Results of bivariate analysis

The results of the bivariate analysis indicate that patients who were greeted and welcomed by healthcare workers, who found the general attitude of healthcare workers satisfactory, and who were attended to in clean facilities were significantly ($p < 0.000$) more likely to report being satisfied with the overall care received at the visit, in comparison to those who did not have a similar experience at their visit. Likewise, those who were satisfied with the level of privacy, whose healthcare workers enquired about their previous illness, who felt that the healthcare workers understood their health problem, and who were satisfied with how well their health condition was explained, were significantly ($p < 0.000$) more likely to report being satisfied with the overall care received at the visit. This was applicable to both SPs and RPs. (Table 3-2 and Table 3-3).

Table A2-21 shows a summary derived from the ANOVA results for SPs, with statistically significant values ($p < 0.05$) presented with asterisks. The null hypothesis stated that the means were equal (H_0: $\mu_{non\text{-}satisfied} = \mu_{satisfied}$). However, the null hypothesis assumption of equal means leads to an unlikely outcome ($p < .05$); and thus, the null hypothesis is rejected as there were significant differences in scores between non-satisfied and satisfied categories.[14]

Several independent variables (IDVs) were ranked significantly differently. For example, the ANOVA test shows that SPs scored significantly differently on several non-clinical quality aspects; welcoming and greeting by facility staff [$F(1, 374) = 19.31$, $p = 0.000$], general attitude of staff [F

[14] One of the assumptions of ANOVA is that the variances are the same across groups. The insignificant values of the Barlett's statistic across all groups confirm that this rule is not violated and that the use of ANOVA is permissible.

(1, 374) = 30.88, p = 0.000], cleanliness of the facility [F (1, 374) = 32.18, p = 0.000], medical history [F (1, 374) = 7.75, p = 0.005], understanding patient's problem [F (1, 368) = 16.00, p = 0.000], and health condition [F (1, 374) = 18.28, p = 0.000].

Even for the RPs (Table A2-22), the ANOVA test reveals scores that are significantly different on all non-clinical quality dimensions, such as welcoming and greeting by facility staff [F (1, 495) = 67.15, p = 0.000], general attitude of staff [F (1, 495) = 79.34, p = 0.000], cleanliness of the facility [F (1, 495) = 19.70, p = 0.000], privacy during consultations [F (1, 495) = 9.27, p = 0.003], medical history [F (1, 484) = 15.65, p = 0.000], understanding patient's problem [F (1, 488) = 37.19, p = 0.000], and health condition [F (1, 495) = 57.15, p = 0.000].[15]

Table 3-2. Bivariate results of SP experiences with non-clinical factors related to satisfaction with overall care (n = 376)

	Not satisfied *n (%)*	Satisfied *n (%)*	$p - value$
Respect and dignity			
How satisfied are you with welcoming by staff?	60 (33.3%)	137 (69.9)	0.000***
How satisfied are you with the general attitude of staff?	38 (27.1%)	159 (67.4%)	0.000***
Quality of basic amenities			
How satisfied are you with cleanliness of the facility?	51 (32.1%)	146 (67.3%)	0.000***
Confidentiality			
How satisfied are you with the level of privacy?	42 (28.4%)	155 (68.0%)	0.000***
Effective communication			
Did the healthcare worker ask you questions about your previous illness?	125 (45.0%)	71 (77.2%)	0.000***
Did the healthcare worker understand your problem?	31 (22.0%)	166 (72.5%)	0.000***
How satisfied with how well the healthcare worker explained your health condition?	97 (36.9%)	100 (88.5%)	0.000***

Note: * p<.1, ** p<.05, *** p<.01

[15] In the following variables, the significant values of the Barlett's statistic indicate a violation of the homogeneity of variance assumption; welcoming, attitude, cleanliness, previous illness, and health condition. The Krustal-Wallis H test showed that there was a statistically significant difference between the two satisfaction categories in these variables, so the ANOVA result were confirmed.

Table 3-3. Bivariate results of RP experiences with non-clinical factors related to satisfaction with overall care (n = 497)

	Not satisfied *n (%)*	Satisfied *n (%)*	$p - value$
Respect and dignity			
How satisfied are you with welcoming by staff?	32 (68.6%)	359 (90.9%)	0.000***
How satisfied are you with the general attitude of staff?	46 (39.3%)	345 (90.8%)	0.000***
Quality of basic amenities			
How satisfied are you with cleanliness of the facility?	73 (59.4%)	318 (85.0%)	0.000***
Confidentiality			
How satisfied are you with the level of privacy?	47 (61.0%)	344 (81.9%)	0.000***
Effective communication			
Did the healthcare worker ask you questions about your previous illness?	186 (71.8%)	196 (86.3%)	0.000***
Did the healthcare worker understand your problem?	25 (46.3%)	360 (82.6%)	0.000***
How satisfied with how well the healthcare worker explained your health condition?	68 (51.1%)	323 (88.7%)	0.000***

Note: * p<.1, ** p<.05, *** p<.01

3.4.5 Regression results

The results below are based on the regression analysis of the combined RP and SP datasets. Although data was collected from two separate samples, the datasets were combined to determine whether reported satisfaction is related to non-clinical quality aspects, and how it could be related.

Table 3-4: Logistic regression results examining non-clinical and sociodemographic factors as predictors of overall patient satisfaction (Total sample)

	Dependent variable:		Satisfaction with general care	
	Total sample		Facility fixed effects	
Variables	OR	(95% CI)	OR	(95% CI)
SP dummy	1.39	(0.68 - 2.77)	1.43	(0.62 - 3.29)
Respect and dignity				
Welcome	4.48***	(2.60 - 7.70)	5.41***	(2.73 - 10.73)
General attitude	2.41***	(1.32 - 4.40)	2.14**	(1.12 - 4.09)
Quality of basic amenities				
Cleanliness	1.11	(0.75 - 1.64)	1.25	(0.77 - 2.02)
Confidentiality				
Level of privacy	1.83***	(1.18 - 2.85)	2.41***	(1.45 - 4.02)
Effective communication				
Medical history	1.30	(0.72 - 2.32)	1.47	(0.77 - 2.81)
Understanding health problem	3.64***	(2.12 - 6.23)	3.49***	(1.97 - 6.19)
Explaining health condition	4.36***	(2.58 - 7.38)	4.26***	(2.30 - 7.90)
Sociodemographic				
Age	0.91*	(0.81 – 1.01)	0.89*	(0.79 – 1.01)
Age squared	1.00**	(1.00 – 1.00)	1.00**	(1.00 – 1.00)
Gender (Ref. Male)				
Female	0.85	(0.50 - 1.44)	0.91	(0.52 - 1.59)
Race (Ref. African)				
Coloured	0.72	(0.42 - 1.25)	0.61	(0.32 - 1.16)
Education (Ref. < Matric)				
Matric	1.29	(0.84 - 1.98)	1.36	(0.80 - 2.31)
> Matric	0.84	(0.53 - 1.37)	0.85	(0.50 - 1.43)
Province (Ref. Eastern Cape)				
Western Cape	1.29	(0.73 - 2.30)		
Motor vehicle or bakkie	1.62*	(0.93 - 2.83)	1.80*	(0.97 - 3.34)
Satellite dish	1.01	(0.58 - 1.76)	1.02	(0.55 - 1.92)
Fridge or freezer	0.61	(0.25 - 1.46)	0.63	(0.25 - 1.57)
Constant	0.29	(0.02 - 3.38)	0.16	(0.01 - 2.26)
Clusters (facilities)	39		39	
Observations (visits)	811		811	

Note: Confidence intervals adjusted for clustering at facility level shown in parentheses. Significance at *** 1% level ** 5% level * 10% level. Control variables include; age, gender, race, education and province.

In the first models, welcoming of patients by staff was significantly associated with higher odds of satisfaction with overall care for patients in the total sample (odds ratio (OR) = 4.48, 95% confidence interval (CI) 2.60 to 7.70) and in the sample with facility fixed effects (Table 3-4). HSR with the general attitude of staff was also significantly associated with higher odds of satisfaction with overall care for patients in the total sample (OR = 2.41, 95% CI 1.32 to 4.40) and in the sample with facility fixed effects (OR = 2.14, 95% CI 1.12 to 4.09). The responsiveness with the general level of privacy was significantly associated with higher odds of patient satisfaction in the total sample (OR = 1.83, 95% CI 1.18 to 2.85) and in the sample with facility fixed effects (OR = 2.41, 95% CI 1.45 to 4.02). Patient perceptions of healthcare workers' understanding of their health problem had a significant association with patient satisfaction in the total sample (OR = 3.64, 95% CI 2.12 to 6.23) and in facility-fixed-effects sample (OR = 3.49, 95% CI 1.97 to 6.19). In addition, responsiveness of how healthcare workers explained their health conditions was strongly associated with patient satisfaction in the total sample (OR = 4.36, 95% CI 2.58 to 7.38) and in facility-fixed-effects sample (OR = 4.26, 95% CI 2.30 to 7.90). The likelihood of being satisfied with overall care increased with each additional year of the patient's age in the sample without facility fixed effects (OR = 0.91, 95% CI 0.81 to 1.01) and in the sample with facility fixed effects (OR = 0.89, 95% CI 0.79 to 1.01). This was also the case for the age squared in both the sample without facility fixed effects (OR = 1.00, 95% CI 1.00 to 1.00) and the one with fixed effects (OR = 1.00, 95% CI 1.00 to 1.00). Since there is a positive effect of age and a positive effect of age squared, this indicates that as patients' age, they are highly likely to be more satisfied with overall care. With regard to education, patients who had a Grade 12 (high school) qualification were more likely to rate satisfaction with overall care positively in the sample without facility fixed effect (OR = 1.29, 95% CI 0.84 to 1.98) and in the sample with fixed effects (OR = 1.36, 95% CI 0.80 to 2.31). Patient perceptions in relation to the cleanliness of the facility and whether the healthcare workers enquired about their medical history were the only non-clinical dimensions of care that were not significantly associated with patient satisfaction in both samples.

Perceptions were explored of how non-clinical aspects of care by SPs and RPs relate to satisfaction with the overall care (Table 3-5). To run regressions in which variables unique to SPs only are controlled for, in this set of regressions the models were split by SP and RP data. First, it is examined whether the SPs' visit sequence to the facilities had any pattern of association with patient satisfaction, as it is possible that SPs may have changed their assessment of satisfaction over time as they conducted more visits. No significant correlation was found. Patients' responsiveness with regards to welcoming by facility staff was significant for both the SPs (OR = 2.72, 95% CI 1.26 to 5.86) and RPs (OR = 8.05, 95% CI 3.24 to 20.02). Perceptions of patients

regarding the general attitude of staff were strongly associated with patient satisfaction only among the RPs (OR = 4.48, 95% CI 2.18 to 9.22). However, patients' perceptions of the general level of privacy at facilities (OR = 3.17, 95% CI 1.78 to 5.64) and healthcare workers' understanding of patients' health problems (OR = 5.14, 95 CI 2.34 to 11.30) were significantly related with patient satisfaction only among the SPs. Perceptions, in respect of an explanation of patients' health condition, were strongly associated with satisfaction among the SP sample (OR = 7.14, 95% CI 2.82 to 18.10) and the RP sample (OR = 3.12, 95% CI 1.41 to 6.92). Compared to SPs with lower education levels, those who had completed their Grade 12 qualification were 3.26 times [CI 0.96 to 11.12] more likely to rate satisfaction with overall care positively. Age, gender, race and geographic location did not seem to influence patient responsiveness of satisfaction with overall care. As in the larger sample, the only non-clinical aspects of care that were not strongly associated with patient satisfaction were perceptions about facilities' cleanliness and whether medical history was asked for both the SPs and RPs. The sociodemographic variables were not significantly associated with patient satisfaction in all the models.

As a robustness check, an additional model was estimated where a clinical (technical) quality variable was included as one of the explanatory variables. This was done to determine whether the clinical quality variable is a compliment or substitute to the non-clinical variables. In the model, a clinical quality variable was included on whether healthcare workers offered a HIV test, firstly, to TB patients (Table A2-23 and Table A2-24) and, secondly, to contraception patients (Table A2-25 and Table A2-26). Clinical protocols do not require healthcare workers to offer an HIV test to hypertension patients and therefore, hypertension visits could not be included in the analysis. The results of the non-clinical quality variables in the model in which included an HIV test variable for TB patients were not consistent with the initial results, as only a few of the non-clinical variables were significant. The patient responsiveness measure of the general level of privacy was strongly associated with higher odds of patient satisfaction in the total sample (Table A2-23) (OR-2.61, 95% CI 1.07 to 6.40) and in the SP sample (OR=3.84, 95% CI 1.57 to 9.40) (Table A2-24). The patient responsiveness measure of healthcare workers' understanding of patients' health problem had a significant association with patient satisfaction in the SP sample (OR=6.29, 95% CI 1, 96 to 20.23) and in the RP sample (OR=66.09, 95% CI 2.43 to 18.29).

Almost all the results of non-clinical quality variables in the model in which healthcare workers offering an HIV test to contraception patients were controlled for was consistent with the initial results. The patient responsiveness measure of the welcoming of patients by staff was significantly associated with patient satisfaction in the total sample (OR=4.50, 95% CI 2.41 to 8.39), fixed facility sample (OR=6.45, 95% CI 2.69 to 15.50) and the RP sample (OR=9.34, 95% CI 4.19 to

20.84). In terms of the healthcare workers' general attitude, patient responsiveness was strongly associated with satisfaction in the total sample (OR=3.11, 95% CI 1.34 to 7.22) and the RP sample (OR=5.55, 95% CI 1.83 to 16.79). Lastly, the responsiveness measure of how healthcare workers explained patients' health condition was strongly associated with patient satisfaction in the facility fixed effect sample (OR=6.48, 95% CI 2.71 to 15.52), the SP sample (OR=6.73, 95% CI 2.67 to 16.93) and the RP sample (OR=3.90, 95% CI 1.49 to 10.25) (Table A2-25 and Table A2-26).

Table 3-5: Logistic regression results examining non-clinical and sociodemographic factors as predictors of overall patient satisfaction (SP and RP)

	Dependent variable:		Satisfaction with general care	
	SPs		RPs	
Variables	OR	(95% CI)	OR	(95% CI)
Visit sequence	0.97	(0.92 - 1.01)		
Respect and dignity				
Welcome	2.72**	(1.26 – 5.86)	8.05***	(3.24 – 20.02)
General attitude	1.35	(0.55 - 3.28)	4.48***	(2.18 – 9.22)
Quality of basic amenities				
Cleanliness	1.37	(0.75 – 2.49)	1.19	(0.65 – 2.18)
Confidentiality				
Level of privacy	3.17***	(1.78 – 5.64)	1.13	(0.50 – 2.54)
Effective communication				
Medical history	1.55	(0.73 – 3.28)	1.16	(0.51 - 2.61)
Understanding health problem	5.14***	(2.34 - 11.30)	1.75	(0.77 – 3.97)
Explaining health condition	7.14***	(2.82 – 18.10)	3.12***	(1.41 – 6.92)
Sociodemographic				
Age	0.95	(0.74 – 1.23)	0.92	(0.80 – 1.06)
Age squared	1.00	(1.00 – 1.00)	1.00	(1.00 – 1.00)
Gender (Ref. Male)				
Female	0.72	(0.27 - 1.95)	1.25	(0.50 – 3.05)
Race (Ref. African)				
Coloured	0.70	(0.24 – 2.02)	0.68	(0.23 – 2.03)
Education (Ref. < Matric)				
Matric	3.26*	(0.96 – 11.12)	1.24	(0.66 – 2.35)
> Matric	1.24	(0.24 –6.37)	1.15	(0.44 – 3.05)
Province (Ref. Eastern Cape)				
Western Cape	0.92	(0.40 – 2.14)	1.85	(0.68 – 5.05)
Motor vehicle or bakkie	2.48*	(0.91 – 6.75)	1.05	(0.43 – 2.56)
Satellite dish	0.38	(0.09 – 1.65)	1.43	(0.71 – 2.90)
Fridge or freezer	0.80	(0.09 – 6.99)	0.43	(0.13 – 1.44)
Constant	0.21	(0.02 – 19.94)	0.37	(0.02 – 7.72)
Clusters (facilities)	39		38	
Observations (visits)	336		475	

Note: Confidence intervals adjusted for clustering at facility level shown in parentheses. Significance at *** 1% level ** 5% level * 10% level. Control variables include; age, gender, race, education and province.

3.5 DISCUSSION

The intrinsic aim of any health system is to provide patients with high-quality, satisfactory care, with the intention of driving demand for services (Dansereau et al., 2015). Patients who are satisfied with the services they receive at healthcare providers are likely to seek more healthcare than those who are less satisfied (Jacobsen and Hasumi, 2014), and also at the appropriate time when they require care. It is, therefore, important to understand whether the non-clinical dimensions of healthcare are more or less important to SPs compared to RPs, given the training SPs have received to enable the systematic measurement of clinical (technical) quality experienced during their visits.

Generally, the findings of this study reveal that more positive interactions with the non-clinical factors were strongly related to an overall satisfactory experience with the health services for both the SPs and RPs. Consequently, health policy-makers should, in addition to the medical or technical aspects of healthcare, also focus on non-clinical factors to ensure that patients are satisfied with the public health service (Fernández-Pérez and Sánchez, 2019), increasing the possibility of further future engagements with the health system.

Furthermore, it was found that among SPs, more non-clinical dimensions of healthcare were strongly related to patient satisfaction with overall care, while only fewer of these dimensions were significant among RPs. The noteworthy dimensions for the SPs were confidentiality and effective communication, and these were strongly related to clinical quality. Respect for dignity was the only dimension that came out very strong for the RPs. In a recent literature review study, Cazabon et al. (2020) found that the capacity of facilities to keep information confidential influenced patients' satisfaction. Moreover, the same authors found that patients' experience of having no explanation about their disease was strongly associated with loss to follow up. Another study also considered explanation of illness and appropriate treatment by clinicians to be very important (Honda, Ryan, Van Niekerk, and McIntyre, 2015). According to Honda et al. (2015), a clear explanation of the diagnosis and good staff attitudes were among the important attributes that determine health seeking behaviour among people.

After testing for the correlation between average satisfaction with overall care at facility level between SPs and RPs, a positive and statistically significant correlation was found. This shows that there is at least some overlap between the experiences of the two groups of patients at the same facilities, making the results comparable. However, as stated before, the association between average satisfaction among SPs and RPs and within each group of patients may be subject to "halo effects", hence the interpretation should take this into consideration.

In addition to organisational aspects, such as welcoming and greeting by staff and cleanliness of the facility, SPs also consider interpersonal attributes of non-clinical care, such as healthcare workers' understanding of their health condition, vital in their evaluation of healthcare quality. Most of the interpersonal attributes comprise of effective communication on the part of healthcare providers. In a recent study Burger et al. (2019) highlight the lack of effective communication as one of the impediments of South Africa's PHC system. The authors (Burger et al., 2019) also point out that failure to communicate with patients does not only lead to poor case management, but also indicates a lack of patient-centredness and responsiveness. This implies a dire need for policymakers to focus on the way healthcare workers communicate as part of the professional development programmes of healthcare workers.

Evidence from activated patients' studies show that highly activated patients report superior care encounters compared to less activated patients (Hibbard and Greene, 2013; Hibbard et al., 2004). This could be ascribed to the fact that activated patients may have the aptitude and conviction to seek what they need from their providers (Hibbard and Greene, 2013; Hibbard et al., 2004). In this study, it was the less activated patients (RPs) who reported overall better care experiences. Social desirability bias, in terms of not wanting to disappoint enumerators, prior limited care experiences (not having been exposed to good care before) and lower education levels, on the part of said patients, might have influenced them to report higher scores although services might have been of lower quality (Kelarijani, Jamshidi, Heidarian, and Khorshidi, 2014; Latkin, Edwards, Davey-Rothwell, and Tobin, 2017).

Patient characteristics, such as gender, age, race and province were not significantly associated with patient satisfaction in this study. This is contrary to other studies that found that characteristics such as age, race or ethnicity, income and education were related to how patients rate their care experience (Carlson, Blustein, Fiorentino, and Prestianni, 2000; Elliott et al., 2009; Hibbard et al., 2004; Weech-Maldonado et al., 2003). Well educated patients may be able to understand and evaluate the care received better (Nicole Valentine, Verdes-Tennant, and Bonsel, 2015). In an earlier South African cross-sectional study, in which the 2010 General Household Survey (GHS) was used to investigate patient satisfaction, it was found that significant differences in overall satisfaction with healthcare services by race and income were due to differences in the ability to access private healthcare services among the population groups (Jacobsen and Hasumi, 2014) and thus, further limited care experiences of respondents. This suggests that in this study, the race of patients (only Black African and Coloured patients) might be insignificantly associated with satisfaction, because the study was only confined to the public healthcare services, where patients may not always experience a wide variety of quality of care.

It is worth noting that achieving a Grade 12 qualification (high school completion) was significantly related to satisfaction only among SPs. It is not clear whether more education means patients were objectively better treated by healthcare workers or were able to better evaluate the non-clinical nature of care received. This finding is in line with studies that found further education was positively associated with patient satisfaction (Carlson et al., 2000; Elliott et al., 2009). However, in the realms of this study, this implies that education may be important, not only for its own sake, but for the empowerment of patients.

These findings should be interpreted with caution due to the following limitations. Firstly, this study's main limitation is the sample size – a small number (39) of healthcare facilities were utilised in only two provinces, with a limited number of visits conducted in each facility. Secondly, this study was only based in urban areas and therefore, the findings cannot be generalised. Future work should aim to cover more facilities, including those in semi-urban areas and small towns. Thirdly, this study is restricted to patients who visited healthcare facilities for the duration of the study period. The experiences of people who did not visit healthcare facilities during this study are not captured in this analysis. Fourthly, the cross-sectional nature of this data does not allow for a follow up with the SPs with a view to investigate benefits of their activation and their health seeking behaviour.

The main findings of the study suggest that the training provided to patients about clinical practise guidelines and patients with higher level of education are important for HSR. This finding is important in the light of challenges regarding continuity of care in South Africa. Most importantly, the findings seem to show that activated patients are more aware of quality of care than non-activated patients. This suggests that the "short route" to accountability has potential to be used to monitor service delivery in healthcare. The findings from the robustness test also showed that in healthcare areas, such as contraception, where there is more sensitivity required, some of the HSR indicators, such as attitude of staff, are complementary to clinical quality. Patients are unlikely to share the information about their lives and sexual healthcare needs with providers if providers do not treat them with the necessary respect and dignity, and do not engage in effective communication. This is contrary to tuberculosis in which some of the HSR indicators could potentially play a more substitutive role to clinical quality of care. However, even in tuberculosis care, a minimum level of non-technical competency among healthcare workers is required.

CHAPTER 4: INSTRUCTIONAL LEADERSHIP AND ACADEMIC PERFORMANCE: EASTERN CAPE EDUCATORS' PERCEPTIONS AND QUANTITATIVE EVIDENCE

ABSTRACT

South Africa lags far behind other countries on student achievement and even some upper-middle income countries in Africa, although the country spends more on education than its peers. Dysfunctional leadership in many schools may be an important reason for the low academic performance of South African students. This study aims to explore the experiences and perceptions of school educators on how school principals monitor curriculum delivery. To achieve this aim, the principal-agent problem and accountability in education is investigated. Two types of data are used within this study; qualitative data, from interviews with school principals and teachers, and quantitative data, from an international educational evaluation. The interview data was collected in 2015 at selected primary schools within three Eastern Cape education districts. Respondents at each school included: the school principal and three foundation phase teachers. To triangulate findings from interviews, the association between school leadership and student academic scores in the Trends in International Mathematics and Science Study (TIMSS) 2015 dataset was examined for Grade 5 and 9. The association between measures of instructional leadership, in terms of teachers' understanding of curricular goals and teachers' degree of success in implementing curricular goals, and student scores for mathematics and science was explored using linear probability models. Findings confirm the existence of the principal-agent problem in education, since many school respondents indicated that curriculum delivery monitoring was not conducted as expected. From the multivariate analysis, instructional leadership variables, such as teachers' understanding of curricular goals and teachers' degree of success in implementing the curriculum appear as important correlates of student achievement, though significance differs according to level of schooling and whether the questions were answered by principals or teachers. Policy implications point to a need to hire, empower and support principals to create a culture of accountability in schools.

4.1 INTRODUCTION

South Africa lags far behind other countries on student achievement, and even some upper-middle income countries in Africa, despite the country spending more on education than its peers (Taylor, Van der Berg and Mabogoane 2013). Dysfunctional leadership in many schools may be an important reason for the low academic performance of South African students.

The main purpose of this study is to provide a qualitative account of one type of school leadership, in this case instructional leadership, in South African schools, and to present descriptive and multivariate evidence on the association between leadership quality and education outcomes across schools that participated in the Trends in Mathematics and Science Study (TIMSS) in 2015. It is this study's intention to determine whether the government (Department of Basic Education) takes advantage of the long route to accountability or not in monitoring delivery of education in schools.

The South African Department of Basic Education's Action Plan to 2019 envisages school principals who ensure that teaching in the school takes place as expected, in accordance with the national curriculum (Republic of South Africa, 2015). The principal is also expected to have insight into "… his or her role as a leader whose responsibility is to promote harmony, creativity and a sound work ethic within the community and beyond." (Republic of South Africa, 2015:9). The National Development Plan (NDP) foresees a schooling system with highly motivated students and teachers by 2030. The NDP also envisages school heads who are effective in providing administrative and curriculum leadership at school (Republic of South Africa, 2011). In a nutshell, the principal's task is to ensure a good environment for teaching and learning in the school. The role of the principal, as described in the NDP, captures the main elements of instructional leadership, as defined in greater detail in section 2 below.

The theoretical framework for the current study is the principal-agent problem and accountability (Gailmard, 2014). Bruns et al. (2011) argue that incentive systems in education face a principal-agent problem that is prevalent in most sectors and firms. The authors state that within the educational context, the principal might be the Department of Education who would like its agents, school principals and teachers, to implement the school's curriculum for learning to take place. However, due to information asymmetry and the nature of the education service, objectives of the principal and agents are not always synchronised. The principal-agent problem is further complicated due to the existence of multiple principals and multiple agents. On the one hand, the department of education is also the agent of the parents and students, while on the other hand, the school heads act as principals to their teachers who are acting as the agents of the heads. Bruns

et al. (2011) argue that this sequential set of principal-agent problems requires a more complex system of incentives and accountability than is currently present in most school systems internationally.

In this study, the Department of Basic Education and parents are considered as ultimate principals and the school heads act as proxy principals to teachers who serve as their agents. In the qualitative portion of the study, the instructional leadership in selected primary schools in the Eastern Cape Province is investigated. More specifically, the objective is to gather experiences of principals and foundation phase educators on how instructional leadership is implemented across different types of primary schools in different social settings. When discussing the quantitative section of this work, the association between leadership quality and education outcomes across schools that participated in TIMSS 2015 will be examined.

The study is commenced with a brief overview of South African literature on school leadership and management. Thereafter, international research is presented on instructional leadership. The research approach and methodology is then discussed, where data analysis and interpretation of results is shown initially for the qualitative portion of the study, after which the same will be shown for the quantitative portion of the study. Lastly, conclusions and recommendations are presented.

4.2 LITERATURE REVIEW

4.2.1 Conceptualisation of instructional leadership model

Since the early 1980s, instructional models emerged from the research on effective schools (Hallinger, 2003; Robinson, Lloyd and Rowe, 2008; Hallinger and Heck, 2010). In an article that investigates the link between site-based instructional leadership and teachers' professional development, Graczewski et al. (2009) describe the traditional role of the principal as being that which focuses on administrative management activities, such as enforcing discipline and having good relations with the communities. The same authors point out that the instructional leadership paradigm emerged through the standards-based accountability framework in which school principals based in the United States of America were compelled to take responsibility for the academic performance of their students. The principal is no longer accountable mainly for inputs but is accountable for the performance outcomes of teachers and students (Pont, Nusche and Moorman, 2008). According to Elmore (2005) and Mulford and Silins (2003), school leadership should foster "organisational learning". These authors describe organisational learning as the building of the school's capacity for performance of high standard and continuous improvement through the professional development of staff, and creating a conducive environment for learning to take place. The focus of instructional leadership is on the role of the school principal who

should organise, regulate, oversee, and improve the study programme and teaching in the school (Hallinger, 2003). Some of the other features of instructional leadership include the following:

- Instructional leadership means creating a conducive environment for teaching and learning to take place in the pursuit of academic and social school goals (Robinson et al., 2008).
- Instructional leaders should be goal-oriented and focus on the improvement of student academic achievement (Hallinger, 2003).
- Instructional leaders are perceived as culture builders who create an 'academic press' which instils high academic expectations and standards among students and teachers (Mortimore, 1993).

Hallinger (2005) describes an effective principal as one who can find the correct balance among political, managerial and instructional roles. School leaders should be accountable to improve their schools and are expected to function as instructional leaders. Principals as instructional leaders should focus on coordinating and developing the curriculum (Hallinger, 2005) and pay more attention to creating a favourable teaching environment (Ruebling, Stow, Kayona, and Clarke, 2004). Hallinger and Heck (2010) concur that school leadership should mainly direct its energy to improving student outcomes and the pursuit of other goals should be secondary.

There are various conceptual definitions of instructional leadership, but the model that this paper will focus on is that proposed by Hallinger and Murphy (1987). These authors suggest three dimensions for the instructional leadership role of the principal. The three dimensions are as follows: (1) describing the school's purpose, (2) overseeing the teaching and learning programme, and (3) supporting a conducive teaching and learning culture in the school (Hallinger, 2005).

Each dimension consists of multiple variables or functions with potentially strong associations with student outcomes. For instance, the first dimension; defining the school's mission … incorporates two functions: framing the school's goals and communicating these goals. The second dimension; managing the instructional programme … contains three leadership functions: overseeing and assessing teaching, organising the curriculum, and keeping a watch on student performance. And finally, the third dimension; promoting a positive school learning climate … consists of the following functions: protecting instructional time, promoting professional development, maintaining high visibility, providing incentives for teachers, and providing incentives for learning.

Several studies on school leadership focus on how school leadership influences student learning. Studies on the effects of school leadership on student achievement vary between those that focus on a broad range of mediators (Robinson et al., 2008; Dong and Cravens, 2011) to those that

specifically look at a narrow set of mediators of student learning (Leithwood, Patten and Jantzi, 2010; O'Donnell and White, 2005). In a review of 27 studies that investigated the impact of leadership on student outcomes, Robinson et al. (2008) highlighted five key dimensions of school leadership, of which they found the only dimension to have a relatively large positive association with student achievement to be the dimension which promotes teacher development activities. The other four dimensions included were the following: establishing goals and expectations; resourcing strategically; planning, coordinating and evaluating teaching and the curriculum; and ensuring an orderly and supportive environment. It is also important to highlight that, in contrast to Hallinger (2005), who found a small but significant influence of principals on student outcomes, Robinson et al. (2008) found a substantial contribution of instructional leadership to student outcomes.

In a later study, Dong and Cravens (2011:86) explain the learning-centred leadership framework as comprising of six main components that are highly effective for student learning and achievement. These are setting above-average criteria for student performance, a meticulous study programme, excellent teaching, a learning ethos and professional conduct, links to external stakeholders, and systemic performance accountability. These authors further elaborate on three features of the learning-centred leadership framework (Dong and Cravens, 2011:86). The first of the three features focuses on measurable "principal behaviours that are linked to teachers' opportunities to improve instructional practices." These exclude leadership aspects that are considered as prerequisites of leadership behaviours, such as knowledge and skills, personal characteristics and beliefs. The second feature of the framework includes standards, curriculum, instruction, culture, external environment, and performance accountability. The third feature assumes that there exist aspects of the context within which leadership and schooling occurs that might moderate the impact of instructional leadership effects. Examples include systemic curriculum standards, experience of leadership, length of time in the same school, student body composition, staff composition, level of schooling and the geographical setting of the school.

Using Hallinger and Murphy's (1987) Principal Instructional Management Rating Scale (PIMRS), O'Donnell and White (2005) found that teachers viewed the creation of a positive school climate by principals as the most important predictor of student achievement. However, results from their multivariate analysis indicated insignificant positive results regarding principal instructional leadership and students' performance as perceived by both principals and teachers.

4.2.2 South African context

(a) Education policy changes

Since the dawn of democracy in 1994, there has been considerable policy shift in school leadership and management in South Africa. The 1997 amendment of the South African Schools Act gave impetus to increased accountability in the delivery of education. The Act states that the principal has to account for the academic performance of students in the school (Republic of South Africa, 1996). In the area of school management, the Department of Basic Education (2015) notes some progress with regard to the attainment of this goal. The NEEDU report (2012) highlights an increase in the percentage of schools with improvement plans and class registers. However, several persons interviewed by NEEDU in most provinces expressed dissatisfaction with the time provided to implement the plans, despite overall improvement in carrying out the plans. The increase in the number of schools with improvement plans may merely indicate a rise in nominal compliance rather than an actual improvement in school management.

The transition from a racially divided education system to a unified non-racial system has significantly transformed the policy context for school leaders and managers (Bush, 2011). Ngcobo and Tikly (2010) note that since 1994, the South African government managed to put in place initiatives aimed at transforming education from its segregated past. Despite this, South Africa disappointingly lags behind in educational performance relative to international comparators and has not succeeded in substantially improving the performance of historically disadvantaged students. School effectiveness studies (Taylor et al., 2013) also point out that students who attend historically White schools perform considerably better than their counterparts in historically Black schools. A full transformation of the education system has, thus, not yet been achieved.

(b) Reasons for poor academic performance

In a paper applying multivariate analysis to identify the factors associated with academic performance using National School Effectiveness Study (NSES) data, Taylor (2011) found that while school resource variables were not significant correlates of student performance, indicators of effective school management were related to learning outcomes. At the same time, the study revealed that South African schools differ greatly with respect to aspects such as good management practices, commitment of teachers, planning, curriculum coverage, and teacher knowledge. Moreover, these factors are highly correlated to student achievement.

There are multiple reasons for the lack of responsiveness of the schooling system to various government reform efforts. Some of the reasons advanced by researchers include persistent shortages of physical and human resources, lack of professional training among educators (Jansen,

2005), socioeconomic problems, family structure breakdown, poverty, vandalism and lack of respect for teachers (Kamper, 2008; Ngcobo and Tikly 2010; Jacobs, 2014). However, there is growing evidence that systematic variation in school performance, rather than poverty, might contribute to low academic learning in historically disadvantaged South African schools (Van der Berg, 2007; Spaull, 2011). The aforementioned researchers, using Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) 2000 data and SACMEQ 2007 data respectively, found that poor South African children perform worse relative to equally poor children in neighbouring countries. From their findings, the authors argued that there are factors besides poverty that might be preventing effective learning in historically disadvantaged schools in South Africa.

Using the NSES data in comparing curriculum coverage across historical parts of the school system, Taylor et al. (2013:67) found that "… weak instructional leadership and classroom practices …" affect achievement among students in historically disadvantaged schools. In the NEEDU report (2013:19), instructional leadership features very strongly in the recommendations. It is phrased as follows:

> It is the responsibility of the principal to lead curriculum delivery. While tasks and responsibilities should be formally distributed to members of the SMT *(School Management Team)* and teachers, the principal must direct the overall strategy. A division of labour must be established within the school, with important tasks defined, planned and allocated to senior members of staff.

(c) Principals and their role as instructional leaders

Some aspects of school leadership and management in South Africa, notably managing teaching and learning, remain inadequately researched. In a study on the labour market for South African principals, Wills (2015) reaffirms previous remarks by Hoadley et al. (2009) that the school leadership research base is limited. Studies on instructional leadership seem to provide conflicting evidence regarding principals' understanding of their key role in promoting curriculum delivery in their schools. The NEEDU report (2013), which focused on 133 primary schools throughout the country, noted that generally principals were quite aware of the centrality of their responsibility and that of instructional leadership in leading the programme of the schools. However, the report noted that despite such awareness of the importance of instructional leadership, the schools' implementation of instructional leadership was not in line with policy as outlined in the curriculum and assessment policy statements (CAPS). In contrast, an earlier study by Hoadley et al. (2009), using data from a stratified sample of 142 high schools in the Eastern Cape and Western Cape provinces, found that principals understood their primary tasks as administration and chastising

students. Principals were oblivious to the importance of their leadership role in curriculum monitoring. Another earlier study in Gauteng came to a similar conclusion, as principals were shown to be ignorant of their role as instructional leaders (Bush and Heystek, 2006).

Bush and Glover (2016), in their review of literature on school leadership and management in South Africa, discern a rising recognition that instructional leadership might be a proper route to follow for school improvement in South Africa. Bush and Glover (2016) cite Robinson et al. (2008) who maintain that for school leaders to have a positive influence on student outcomes they should pay more attention to the core business of teaching and learning. This, according to Bush and Glover (2016), may be conducted through appropriate class visits, and phase and learning area discussions among educators. Other researchers (Taylor, Mabogoane and Akoobhai, 2011) highlight, more specifically, instructional time management as an important aspect of instructional leadership. These researchers note inefficiencies in the way time is utilised in many of South African schools. This manifests at three levels, namely, arriving at school, getting to class, and covering the curriculum while in class. In their mixed method study undertaken in high schools from the Eastern Cape and Free State provinces, Taylor et al. (2013) found the prevalence of weak management practices, together with very low levels of teacher subject knowledge and destructive union activity. An earlier study (Chisholm et al., 2005), commissioned by the Education Labour Relations Council (ELRC), concluded that there was a gap between policy and practice when comparing hours that educators spent on their different activities to that recommended or implied by national policy. The study found that South African educators spend far less time on actual teaching than the amount of time specified in policy.

(d) Managing instructional time

In their review of education studies on developing countries, Glewwe and Muralidharan (2016) maintain that the high rate of teacher absenteeism contributes to poor school and teacher governance in developing countries. Several South African studies (Carnoy and Chisholm 2008; Reddy et al., 2010; Moletsane et al., 2015) have found that less than half of the officially scheduled lessons are taught. In their study, Carnoy et al. (2012) evaluated 58 schools in the North West province and 58 schools in Botswana, and found that Grade 6 teachers in North West had only taught 40 percent of the scheduled lessons by the beginning of November, while their counterparts in Botswana taught 60 percent of the lessons. In the same study, it was found that principals from North West did not have a problem with teacher absenteeism, but rather noted that in most cases where teachers were present in school, they failed to teach students due to lack of confidence in their Grade 6 mathematics content.

In a study by the Human Sciences Research Council, commissioned by the United Nations International Children's Emergency Fund (UNICEF) on behalf of the Department of Education, Reddy et al. (2010) argue that the time spent on teaching and learning activities in school is among the reasons for low quality education provision in South African schools. They found that the leave rate of teachers in South Africa was between 10 percent and 12 percent[16], which translates to 20 to 24 days out of the official total of 200 school days. In its literature review, this study additionally found that in high-income countries' teacher absence rates were between 3 percent and 6 percent, and that there was a system of substitute teachers to compensate for teacher absence (Reddy et al., 2010). Contrary to this, most less developed countries did not have provisions for substitute teachers and in these countries, teacher absence rates averaged at 19 percent.

The Employment of Educators Act 76 of 1998 stipulates that educators are regarded as being on annual leave during the institutional closure periods which are outside of scheduled working time. The exception is when the educator is required to perform some of his or her normal duties, such as preparation for the new school term or marking of internal examination scripts. It should be noted that in South Africa, educator leave policy is not clear as to the acceptable number of days educators may be absent from school, but there is general agreement that 10 percent should be used as a benchmark (Republic of South Africa, 2013b). Moletsane et al. (2015) point out that while educators' leave policies are meant to enhance teachers' conditions of service, their objective is also to safeguard the rights of students to good quality education by ensuring that teachers remain on task, and that teaching and learning is not disrupted. This indicates that the principals are duty-bound to ensure that, while promoting teachers' conditions of service, they at the same time do not deprive students of their right to education.

A survey of 2005 schools conducted by Social Surveys, on behalf of the Department of Basic Education, found that nationally 6.1 percent of educators were absent on an average day, with the highest absentee rate in KwaZulu-Natal at 8.2 percent (Republic of South Africa, 2013b). This finding implies that educators on average were absent for 12 teaching days per year in South Africa. This refers to those educators who had not signed the educator leave register and are not in school due to ill-health, attending to family matters or studying. Other related findings of the survey include the following:

- High vacancy levels in permanent teaching posts in some provinces.

[16] The Human Sciences Research Study defines educator leave as including the following leave categories; (i) times taken according to leave measures; (ii) when educators are on duty but away from school attending professional development workshops; and (iii) when educators participate in school activities like sports, excursions and festivals.

- A low percentage of schools that cover the required number of language and mathematics exercises per week in all provinces.
- A low number of visits by district officials for monitoring and support purposes in the Eastern Cape schools – 74 percent compared to the national average of 87 percent.
- Low satisfaction among principals with the district support services.

4.2.3 Summary

The South African literature above is suggestive of the elements that should comprise the line of enquiry of the current study. The first element is instructional time - this has been highlighted in a number of studies (Taylor 2013; Reddy et al., 2010; Republic of South Africa, 2013; Chisholm et al., 2005). The second element is the role of principals in curriculum monitoring, which has also been tackled by several studies (NEEDU 2013; Hoadley et al., 2009; Bush and Glover, 2016). Other elements from the literature include teacher union activity (Taylor et al., 2013) and managing teacher vacancies (Republic of South Africa, 2013b). These factors have been incorporated in the design of the qualitative aspect of the present study. Some factors have also been included in the quantitative part of the study, where the data allowed.

4.3 SETTING

The Eastern Cape is primarily a rural province, characterised by high levels of unemployment and illiteracy (ECDOE, 2015). Among the features of the province, resulting from the legacy of apartheid, are glaring disparities in infrastructure. These disparities are more pronounced in the eastern part of the province. The eastern part of the province is more economically impoverished, with a terrain that makes its accessibility to services far more difficult than in the western part (ECDOE, 2015). The skills profile of the province is also affected by migration to other regions, evidenced by the low nominal growth of population in the 20-49-year group. This is the economically active age group that typically moves to other areas in search of job opportunities. Even within the Eastern Cape, there is evidence that the population is slowly moving into the 60-100km-wide coastal belt, a more economically active area, which now contains almost half of the provincial residents.

Over a long period, the education administration of the province has been confronted with major challenges, despite an overabundance of national interventions that even includes the implementation of Section 100 (1) (b) of the Constitution at one stage. This section allows the national executive to take over the responsibility of education delivery, following provincial

authorities' failure to do so. Section 100 (1) (b) was implemented with effect from March 2011. It is not clear when the section was lifted, but according to the National Department of Basic Education, it still applied during 2016. The administrative leadership of the provincial education department acknowledges that the department is faced with "a deep-rooted discord between policy intentions and policy implementation, resulting in failure to meet minimum norms and standards in the delivery of education services." (ECDOE 2015:55). The then acting head of the department, Ms Sizakele Netshilaphala, noted that the dire state of affairs in the department is associated with a lack of policy implementation and a problem of dysfunctional schools (Nkosi, 2015).

4.3.1 Socioeconomic status of the province

As alluded to above, the Eastern Cape Province is characterised by high levels of unemployment, poverty, illiteracy and infrastructural backlogs. From the National Education Infrastructure Management System[17] (NEIMS) indices, such as the socioeconomic deprivation index (SEI), composite infrastructural index (CII) and composite services index (CSI), it emerges that a significant number of the worst performing education districts are from the eastern part of the province. All these indices were constructed based on the 2011 Census (Republic of South Africa, 2013a). Table 4-1 shows the performance of the 23 education districts in the Eastern Cape regarding the above indices. From the table, education districts situated in the eastern part of the province (Cluster[18] A and B) are worse off than those situated in the western part of the province (Cluster C). This picture depicts the legacy of apartheid where areas situated in the former homeland[19] of Transkei, based in the eastern part of the province, experienced greater poverty and deprivation.

The eight poorest education districts in the country, in terms of ranking on the socioeconomic index, with high levels of functional illiteracy, low income per capita and fewer households with electricity, are all situated in the eastern part of the Eastern Cape, either in cluster B or C (as provided in Table 4-1). Again, the six districts with the worst infrastructure and access to household services are also found in the eastern part of the province. This pattern also holds true for school districts with the highest proportion of students studying in quintiles 1 and 2 schools, the poorest schools. Out of 86 education districts in the country, six of the 10 districts with the largest proportions of poor students, those attending quintile 1 and 2 schools, are in the Eastern Cape.

[17] The NEIMS is a database of public schools derived from the first infrastructure survey (School Register of Needs – SRN) conducted in 1996 and updated in 2000.
[18] The 23 education districts are demarcated into three clusters, namely, clusters A, B and C. Included in clusters A and B are districts situated in the former Transkei, while Cluster A consists of districts situated in the former Ciskei and those managed by other former education authorities.
[19] A homeland or a Bantustan was a territory set aside for Black people as part of the policy of apartheid.

The remaining four out of 10 districts are in KwaZulu-Natal (two), Limpopo (one) and Mpumalanga (one) (Republic of South Africa, 2013a).

Table 4-1: Eastern Cape education districts per socioeconomic status

Cluster	Education Districts	Socioeconomic Index[20] (0=most poor)	Composite Infrastructural Index[21] (0=worst)	Composite Services Index[22] (0=worst)
A	Libode	0.21	0.17*	0.11*
	Lusikisiki	0.09*	0.11*	0.05
	Maluti	0.18*	0.27	0.26
	Mbizana	0.15*	0.12*	0.07*
	Mount Fletcher	0.11*	0.19*	0.25
	Mount Frere	0.20*	0.19*	0.19*
	Qumbu	0.30	0.08*	0.20*
Average		**0.18***	**0.16***	**0.16***
B	Butterworth	0.27	0.22	0.24
	Cofimvaba	0.18*	0.33	0.19*
	Dutywa	0.07*	0.26	0.07*
	Lady Frere	0.25	0.27	0.34
	Mthatha	0.36	0.35	0.39
	Ngcobo	0.17*	0.27	0.25
	Sterkspruit	0.37	0.52	0.58
Average		**0.24**	**0.32**	**0.29**
C	Cradock	0.47	0.62	0.82
	East London	0.57	0.86	0.78
	Fort Beaufort	0.47	0.43	0.59
	Graaff-Reinet	0.49	0.75	0.88
	Grahamstown	0.53	0.62	0.84
	King William's Town	0.50	0.64	0.58
	Queenstown	0.52	0.57	0.78
	Uitenhage	0.59	0.85	0.88
	Port Elizabeth	0.68	0.96	0.92
Average		**0.53**	**0.70**	**0.78**

Source: Republic of South Africa 2013a

[20] The socioeconomic deprivation index for education districts combines various social and economic criteria from the 2011 Census. The following criteria were used to create the index. 1. Functional literacy, referring to the percentage of adult population that has attained at least Grade 6 schooling divided by the total number of adults (aged 20 and above). 2. Per capita income, which means the total monthly income divided by the total population. 3. Percentage of households with electricity (supplied by Eskom or a local municipality) (Republic of South Africa, 2013a).

[21] The Composite Infrastructural Index is composed of percentages of schools with access to water, electricity, fencing and gates, schools with sewage disposal, schools with flushing toilets.

[22] The Composite Services Index was created using data from Census 2011. Four variables were used to construct the index, namely, type of toilet facility, sources of water, refuse disposal method, and type of energy used for cooking (Republic of South Africa, 2013a).

4.3.2 Educators' profile

In addition to the structural resources referred to above, the quality of education is also dependent on other school resources, such as learner-educator ratios (LERs), teacher qualifications and experience, and other factors including the availability of learning materials, level of organisation of the school (timekeeping and management.), the socioeconomic background of the students, and motivation of the teachers. The student-educator ratio refers to the average number of students per educator. The lower this number, the better the potential quality of education, since contact time can be improved and learning enhanced. The student-educator ratios for education districts include educators appointed by School Governing Bodies (SGBs) (Table 4-2). From the information in the table it can be concluded that there is substantial intra-provincial variation in student-educator ratios, with the highest ratios found in the Libode, Lusikisiki and Mbizana education districts.

Table 4-2: Eastern Cape education district student-educator ratios, 2012

Student-educator ratios	Education districts
22 – 25	Butterworth; Cofimvaba; Fort Beaufort; Grahamstown; King William's Town
26 – 28	Cradock; Dutywa; East London; Lady Frere; Mt Fletcher; Port Elizabeth; Queenstown; Qumbu
29 – 30	Maluti; Mt Frere; Ngcobo; Sterkspruit; Uitenhage; Mthatha
31 – 33	Graaff-Reinet
34 – 36	Libode; Lusikisiki; Mbizana

Source: Republic of South Africa 2013b

In South Africa, the qualifications of educators range from relative education qualification value (REQV) 10 (matric, no-training) to REQV 17 (matric + 7 years of training). The lowest REQV, REQV 10, represents unqualified educators, while educators with REQV 11-12 are regarded as underqualified. To be fully qualified to teach in South Africa, an educator must have REQV 13 and above. These higher REQVs denote that the educator has completed Grade 12 and has attained three or more years of tertiary study. In 2012, the Eastern Cape had a mere 1 percent of educators who were unqualified and underqualified by these criteria, while the proportions of educators who were qualified (REQV 13) and well qualified (REQV 14-17) was 29 percent and 69 percent respectively. Thus, 98 percent of educators met the minimum qualification standard. The districts with higher proportions of well-qualified educators were more urban and densely populated ones, for example Port Elizabeth, Grahamstown, East London and Mthatha. This

indicates that generally, educators in the Eastern Cape are considered well qualified to teach, based on formal qualifications (Republic of South Africa, 2013a).

Regarding the average age of educators, the western part of the province is characterised by older educators, with Graaff-Reinet being the education district with the highest average educator age at 50.1 years. In contrast to this, the educators in the more under-developed eastern part of the province are relatively younger (Republic of South Africa, 2013a)

In the following section, the data collection for this study is described, in terms of the qualitative dataset and the quantitative dataset.

4.4 PERCEPTIONS FROM EASTERN CAPE EDUCATORS

This section provides a description of the data, method, ethical clearance and findings for the qualitative portion of this study.

4.4.1 Data collection

The main part of this study is based on semi-structured, in-depth interviews with focus placed on investigating the underlying processes of instructional leadership within the context of the South African schooling system. The rationale for including a qualitative component is that previous research in South Africa has mainly focused on quantitative analysis.

A total of 15 principals and 42 foundation phase primary teachers at 15 primary schools were interviewed in three selected districts of the Eastern Cape. The target was to interview 15 principals, however, at one school the head of department (HOD) who was an acting principal in the school was interviewed, and at another school in the same district, the principal was not at the school and consequently, the HOD was interviewed. Since HODs are also in the school management teams, they are assumed to be familiar with the leadership and management responsibilities of the principals, and therefore, this should pose no problem for the quality of the data obtained. The involvement of different individuals per school provides for data verification and triangulation of responses to questions regarding the management of the curriculum (Hoadley et al., 2009).

The 15 primary schools were purposively selected based on several criteria, including; academic performance, socioeconomic status, and cultural environment. The criteria were used to obtain a balanced sample of schools across academic performance. The ANA Grade 6 results for 2013 were used to determine academic performance of schools. This is consistent with Taylor et al. (2013), who used ANA test scores for 2010 to identify two pairs of schools in rural KwaZulu-Natal and rural North West. In selecting the schools, convenience sampling was used. For instance,

schools were selected in districts in such a manner that it would reduce transport costs and time for data collection. Moreover, the principal investigator had well-established contacts with the districts in which the schools were located.

Data was collected through a vignette and integrated into an interview guide, along with open-ended questions about the case of a poorly-managed school in a rural South African context. Vignettes are defined as "… short stories about hypothetical characters in specified circumstances to whose situation the interviewee is invited to respond …" (Finch, 1987:105). A vignette, therefore, is a useful research instrument in cases where the interviewees may be reluctant to disclose information about their conduct and viewpoints (Gourlay et al., 2014). Research on how school principals lead and manage teaching and learning is a sensitive topic and it is assumed that some principals and teachers may not be willing to reveal the truth about their specific school situations. Vignettes may assist in eliciting more truthful responses from school principals and teachers. The vignette is based on a rural primary school principal whose school is characterised by low student numbers, a high rate of absenteeism and late arrival at school among both teachers and students (see Tool A3-5 for the full vignette). The academic performance of students at this hypothetical school is very weak, as reflected in the annual national assessments results for the past three years.

The semi-structured format of the interviews enabled interviewers to use prompts to explore issues more in depth where necessary. Interview questions for both principals and teachers were focused on respondents' perceptions of leadership in curriculum delivery, as a well as matters relating to managing the school's instructional time. In addition to these broad themes, the interviews also sought basic information statistics, such as enrolment, class sizes, teacher-pupil ratios, teaching qualifications, and teaching experience to account for school context. In this regard, photographs of the schools, copies of documents, such as attendance registers, timetables, and teachers' work programmes were gathered, and there were unstructured observations of the schools' culture and climate.

Before the questions were posed, each participant was provided with an extract to read. The first set of questions was directly based on the extract, where the participants were asked their opinion based on what the character in the vignette should do to address the problems in their school. Thereafter, questions were asked which were specific to the contexts of the respondents' schools, along with asking the respondents to provide answers about their own conduct and experiences.

The interviewed school districts are in East London, Fort Beaufort and King William's Town. As a departure from earlier South African case studies on instructional leadership at schools, which

focused on schools serving very poor communities (Malcom et al., 2000; Christie et al., 2007; Taylor et al., 2011), this study is based on schools that serve communities of different socioeconomic statuses within a single province. The selected schools differ in the following respects: enrolment and number of staff, student performance, former education departments, socioeconomic conditions, cultural environment, and political economy. For instance, some schools are former Model C[23] schools, others are based in Black and Coloured townships, while others are drawn from rural areas. Four of the schools are quintile[24] five schools, being the richest group of schools, one is quintile four and the remainder belong to quintile three. The selected schools are all administered by the provincial Department of Basic Education (ECDOE) and are all monograde schools.

The schools were visited in August and September 2015 after obtaining permission from the Eastern Cape Department of Education, and the respective district heads. All the principals were interviewed, with the exception of two schools in which HODs were interviewed, and the foundation phase teachers in the sample schools individually.

4.4.2 Data analysis

A theoretical thematic analysis approach was followed in analysing the data. A theoretical or deductive thematic analysis, in contrast to an inductive approach, tends to be driven by the researcher's theoretical interest in the area (Braun and Clarke, 2006). This implies that the coding of data has been tailored for specific research questions.

During the data collection stage, notes were taken during the interviews and all interviews were recorded on tape. As the interviews progressed, the data was transcribed into written form to conduct a thematic analysis. The transcription assisted in providing familiarity with the data. During this process, there was repeated reading and listening as a way of searching for meanings and patterns. All the transcriptions were conducted, and each recording and its transcription were repeated for accuracy.

Having transcribed the data, computer-assisted qualitative data analysis software - NVivo 11- was used to analyse the data. NVivo is a qualitative analysis software appropriate for use in situations where the researcher has substantial amounts of qualitative textual, audio and visual data. NVivo

[23] These are government schools that are partially administered and funded by parents and a governing body. During apartheid, these schools were known as "Model C" schools and the name has remained since then.

[24] The classification of schools according to quintiles is based on the Norms and Standards for school funding of 1998, which required provincial education departments to rank public schools in their jurisdictions into five quintiles according to the resource targeting table (RTT). This categorisation was based on two criteria, namely, the school's physical or poverty condition and the relative poverty of the school (Pampallis, 2008: 12; Madubula, 2008:127).

is advantageous as it assists with the development of consistent coding schemes and allows for comparisons to be made between coded elements (Robson, 2011).

Coding in NVivo is done by tagging and naming selections of text within each data item. During the initial coding process, the entire dataset was given equal attention, in order for full consideration to be given to repeated patterns within the data.

After the initial coding was completed, the different codes were sorted into themes. This required placing all the relevant coded data extracts within the identified themes. There are six broad themes under which different codes were grouped, as seen in Figure 4-1. Some of these themes have been broken down into sub-themes.

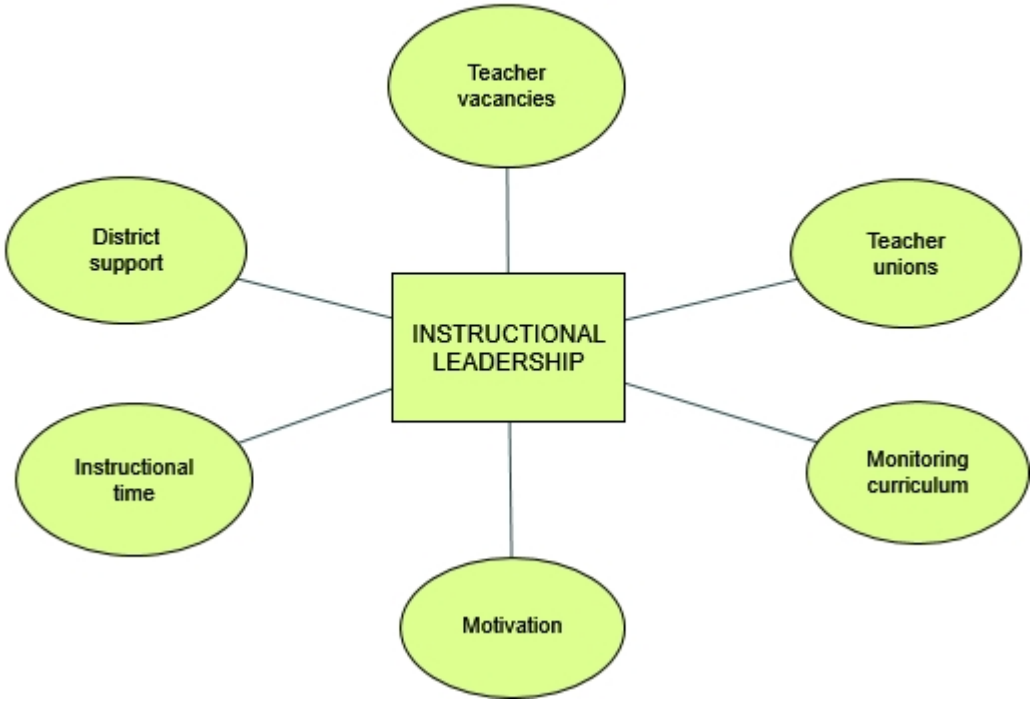


Figure 4-1: Thematic map

As mentioned, data analysis was informed by the research literature and the research questions.

4.4.3 Ethical clearance

The study was approved by the ethics committee of Stellenbosch University (DESC/VanderBerg/Jul2015/3) and the ECDOE provided permission to interview respondents in the selected 15 primary schools. Permission was granted from the district directors at the three education districts. Written informed consent was obtained in English for all respondents in the

study and before each interview verbal consent was granted for the tape recording of the interviews.

4.4.4 Research findings

In this section, the composition of the sample of schools interviewed are initially discussed. This is followed by a discussion of findings. The findings are discussed based on the six broad themes shown in the thematic map in Figure 4-1.

(a) Sample composition

A summary of the demographic composition of the sample is provided in Table 4-3. The sample consisted of eight township schools, four rural schools and three suburban schools (Table 4-3). Most of the schools interviewed, 10 out of the 15 schools, were from quintile three, and the sizes of the schools were fairly spread from medium to very large, with only one small school in the sample. It is also remarkable to note that only four out of 15 schools in the sample were headed by female principals.

Table 4-3: Composition of the sample of schools

	Rural schools	**Township schools**	**Suburban school**	**Total**
	4	8	3	15
	Quintile 3 schools	Quintile 4 schools	Quintile 5 schools	Total
	10	1	4	15
Small schools[25]	Medium schools	Large schools	Very large schools	Total
1	5	4	5	15
		Female-headed	Male-headed	Total
		4	11	15

Source: Author's own calculations from interview data

(b) Instructional time

The literature indicates that the overall management of teaching and learning is crucial for South African principals (Wills, 2015). As discussed, the role of principal includes creating an environment for effective teaching and learning to take place, including putting in place some organisational aspects needed for effective teaching and learning to materialise. Some organisational aspects, such as the management of instructional time, are vital in 'creating

[25] School sizes as determined in the National Minimum Norms and Standards for School Infrastructure (2009). A small school has a minimum of 135 students and a maximum of 320 students; a medium school has a minimum of 321 students and a maximum of 620; a large school has a minimum of 621 students and a maximum of 930 students; a very large school more than 939.

organisational containment and establishing expectations around good quality teaching within the school' (Bush et al., 2010: 378).

The research shows that principals have a restricted role in managing instructional time. Generally, most principals reported that teacher attendance in their schools was good and manageable. There were some instances where a teacher would be absent for one or two days, but that was considered normal. For this study, 'absent' refers to those educators who are not at school as a result of sick/temporary incapacity leave, annual/compassionate/family responsibility leave, or study leave. However, some school principals admitted that they experienced problems regarding attendance by teachers. In addressing teacher absenteeism, one school principal reported that as a school they have adopted a policy where teachers would pay somebody from the community to act as a substitute during a teacher's absence. This practice was used in one other school, and both principals commended this policy, stating that it was effective in curbing teacher absence. It should be noted that in the rest of the schools there was no system of replacement teachers. During a teacher's absence, the burden was on the remaining teachers who teach the same grade to look after students whose class teacher is absent.

Some of the reasons cited by both principals and teachers for teacher absence include sickness, family responsibility, and examinations. Several principals pointed out that, except for sickness, other types of absence are planned. In terms of the Employment of Educators Act 76 of 1998 (Department of Education, 1998), family responsibility leave is granted in cases where "an educator's spouse or life partner gives birth, the educator's child, spouse or life partner is sick, the educator's child, spouse or life partner dies or the educator's immediate family member dies".

Based on the vignette the interviewees were requested to read, respondents were asked the following question: *What do you think Mrs Banayi, the principal, should do to curb teacher and student absenteeism?* A variety of responses were provided by participants to this question. The responses are organised into the following sub-themes: meeting and talking with teachers, meeting with parents, motivating teachers and parents, and implementing leave policy.

Meeting and talking with teachers: several respondents, mostly teachers, cited the need for the principal to convene meetings with teachers to discuss the problem of absenteeism. It is at such meetings that solutions can be formulated. Even consultations with individual teachers have been highlighted as a good way to instil confidence among teachers. A teacher from a King William's Town school stated that the principal should remind teachers that they are role models to the children. The importance of convening meetings with teachers to find solutions to the problem of absence from school was also cited by 47 percent of headmasters. The headmaster of EL3 pointed

out that the principal should *"sit down with teachers and talk to them"* to address the issue of teacher absenteeism. Another headmaster had the following to say:

> *She must sit down with the teachers and talk with them around this issue of distance. They are residing very far from the school, and she must find out from them how they are going to make it in order that they are punctual at school.*

From the interviews it is evident that school principals do not implement any disciplinary actions against their teachers. As in Vawda (2011), the schools addressed teacher negligence informally through meetings with the perpetrator with the hope that this would change his/her behaviour.

Convening meetings with parents: a small percentage of respondents (20 percent) cited the importance of convening meetings with parents. The respondents highlighted that parents need to know the activities of the school, and they ought to support the principal in directing the school in the right direction. For instance, the principal of EL1 stated that the principal should convene parents' meetings to explain the crucial importance of education.

Enforcement of school leave policy: there were some headmasters and teachers who were of the view that a more formal-rule-bound approach was needed to improve the culture of teaching and learning. They said that the headmaster needed to be a bit more authoritative and enforce the school leave policies. A teacher from one of the schools said that:

> *The principal should use the school policy since it covers things like school working times. If a teacher is absent, there should be a concrete reason, like if someone is not well he/she should submit a doctor's certificate.*

Punctuality of teachers and learners: late-coming in South African schools is a widespread problem. Findings from the NEEDU report (2014) describe a dire situation in which in more than half of further education and training (FET) phase schools sampled, and more than 98 percent of senior phase schools sampled teachers, were always and often arriving late at school. Gustafsson (2007) cited teacher late-coming as a problem in 96 percent of South African historically disadvantaged schools and 36 percent of historically advantaged schools, with inference that late coming by teachers was linked to students' academic performance. Gustafsson's (2007) finding is based on his analysis of the SACMEQ 2000 dataset, in which the teacher late-coming variable was based on a question which asked the school principal about the frequency of teachers' late-coming.

When asked about punctuality, both principals and teachers provided mixed responses. Generally, most respondents indicated that teachers were always punctual, while the problem was with students. It is only in a few schools that both teachers and students were said to be always punctual,

and this is due mainly to proximity on the part of students and the availability of scholar transport for those who stay far. Some principals cited the signing of the school attendance register as effective in promoting early arrival by teachers. One principal reported that, previously, he had to lock the gate so that teachers and students who were late remained outside for some time. This is what the principal said about this:

> *I was mentioning embarrassment … close the gate … and the teachers stand with the children who are late … it will happen once or twice but not the third time. I'm talking about experience now … we did it and there was a change.*

There were principals who appeared to have no strategy to deal with teacher punctuality. For instance, one principal pointed out:

> *You get a certain percentage of educators – about 3 percent – who are constantly late. You speak to them, you try to be collegial, you don't want to take the route of the book and the teacher lands in trouble, so you reason with that teacher, but sometimes you see that your efforts are in vain, with some of them …*

In another school, the principal attributed the problem of late-coming of teachers to public transport. This can be related to the school being situated in a rural area, where most teachers stay far away in towns and some are dependent on public transport to attend school.

(c) Teacher motivation

Teacher motivation cannot be substituted by any amount of training or inputs (World Bank, 2018). To achieve a specific goal, everyone requires motivation (Heystek, 2015). When there is no accountability to provide motivation, teachers may shirk their responsibility by providing less effort (World Bank, 2018).

In 2003, the South African Department of Education introduced the Integrated Quality Management System (IQMS), an appraisal instrument meant to develop competencies of teachers and to improve the quality of education (Heystek, 2015; Nkonki and Mammen, 2012).

The interviewed principals and teachers were critical about the role of IQMS in motivating teachers and advancing education quality. From the responses, it was evident that the IQMS was implemented for salary progression by schools, and the developmental function was ignored. Several principals admitted that the performance management system is not done properly because teachers do not want lower scores. One principal captures this sentiment as follows:

> *As a person I am having a problem when they attach money to IQMS. One is always tempted to go for money and not development. If you talk about development, you are supposed to put development on its own as a programme and not assign incentives to it.*

This view is reiterated in the following extract by another principal:

> *I don't think it is particularly successful, generally, across the board. I think it's quite a difficult method of assessing people, especially when you got money attached to it. I don't know how honestly it's done across the board.*

In its design, the IQMS policy combines the aspects of accountability and professional development. Despite an emphasis on accountability, the quality management system has not been able to hold teachers accountable for the quality of their performance, as measured by students' achievement in tests and examinations. Moreover, there has been no disciplinary or corrective action taken in instances where there was poor performance (Heystek, 2015; Mosoge and Pilane, 2014).

However, a few principals and teachers considered IQMS as making a positive contribution to teachers' motivation. One principal stated that, even though teachers focussed on the financial aspect of the evaluation, the system helps in motivation since teachers are aware that someone else is watching them to check on the quality of teaching. This resonates well with one of four mechanisms of motivation mentioned in Lerner and Tetlock's review, that the mere awareness that another person is watching makes one feel accountable and motivated (Gill, Lerner, and Meosky, 2016). The preceding discussion suggests that despite weaknesses of the IQMS, the education system cannot afford to remove it but should instead find ways to improve it.

Besides the policy espoused in the IQMS, principals are supposed to create a positive climate "in which ongoing personal and professional development is encouraged and supported and in which the potential contribution of everyone is valued" (Department of Basic Education., 2014:7). One of the eight key areas of principalship; *'Developing and empowering self, others and wellness of the staff'*, clearly denotes that the principals should know about mechanisms in which they can motivate and boost the morale of their staff members (Department of Basic Education., 2014).

When asked whether their teachers are motivated or not, most principals, nine out of 15 interviewed, noted that they think their teachers are motivated. Two principals described at length the strategies they use to provide motivation for their staff. These strategies involved the creation of a good environment for the staff to be happy. In these schools, teachers are sent to courses or workshops on various aspects of schooling, including: information technology, discipline, administration or specific school subjects. Moreover, according to the principals, these schools are

characterised by having staff outings where staff members are encouraged to have fun. One principal had this to say on teacher motivation:

> *One of my first jobs is to make sure they've got a friendly and safe environment to work in and to keep them motivated, that's my job. I enjoy praising them and make sure I know what they do, so when they do it, I give them acknowledgement for that.*

However, other school principals highlighted several problems which make their teachers feel unmotivated. These problems include high teacher workload due to understaffing, redeployment, class sizes, lack of individual attention, ill-discipline among students and lack of support from the Department. One principal was highly critical of class size, especially in the case of class size in dual-language medium schools. In these schools, there is often a large disparity in class size between the same grade classes for different languages. A case was cited in which there was a total number of 100 learners and three teachers in Grade 5, where two Afrikaans classes have 40 students each, and the English class had only 20 students. The official student teacher ratio of 35:1 was thus not reached in any of these classes.

The issue of teacher redeployment[26] can also be noted as demotivating by teachers. On teacher redeployment one of the principals said the following:

> *The problem of redeployment is tampering with the welfare of educators. You are not certain of what is going to happen tomorrow, so redeployment is not good. Although it helps the department in terms of finances, it affects the educators. Today I am here, tomorrow I don't know where I am going to be.*

When participants were expressing their opinions on teacher and student absence, the themes of motivating teachers and parents came out very strongly, especially from the principals. A substantial number of principals felt that to improve the situation in the school, the principal should motivate their teachers (vignette scenario). One principal stated their opinion as follows:

> *I think she, as the headmaster, should motivate her teachers … possibly change the focus that they have to the children, because they are the most important folk in this whole setup …*

Some respondents suggested ways to motivate the teachers, ranging from teacher awards to motivational workshops. For instance, one school headmaster said:

[26] Teacher redeployment is a rationalisation system based on the redistribution of posts to schools. Schools with lower student numbers are allocated fewer posts while those with higher number get more posts, this leaves some schools with excess teachers who should move to schools where there is a shortage of teachers.

> *… you'll have to start with the teachers, maybe a motivational workshop can do things … there is no quick fix in things like this … it comes with hard work and leading by example.*

Some principals also felt that for improvement of the school, the parents of the children should be on board. The principals, as the school leaders, should strive to win the support of the parents. In illustrating this, one principal said that:

> *… it doesn't matter whether it is rural or urban, if I was that principal, I would get the parents behind me so that they support me in redirecting that school towards the right direction.*

In an effort to achieve that, a substantial number of headmasters agreed that parents need to be motivated. They should be made to appreciate the value of education for their children.

Overall, the responses from the interviews indicate that principals are mindful of their role in motivating their staff members and are fulfilling the responsibility in various ways, despite some challenges emanating from different contexts. Sending teachers to professional development courses and workshops resonates with one of their key duties of 'encouraging effective and relevant continuing professional development opportunities' as explained in the South African Standard for Principalship (SASP) document (Department of Basic Education., 2014:16).

(d) Monitoring curriculum

According to NEEDU (2013:11), an in-depth investigation into the complex ecological nature of the school can "… yield insight into both the substantive practices that underlie formal compliance and the causal relationships between these practices and student learning". Among the characteristics of good instructional leadership highlighted in NEEDU (2013), planning and coordination, assessment[27] and professional development are very important. All three of these components relate to curriculum monitoring and implementation in some way. Below, the sub-themes of planning and assessment and the supervision of curriculum implementation are discussed.

(e) Planning and assessment

Goal setting and planning form an important part of formal aspects of instructional leadership; this is highlighted in a number of studies (Kruger, 2003; World Bank, 2018). In one of the studies, principals acknowledge that instructional leadership is reflected in well-designed policy documents and well-presented annual and term planning (Kruger, 2003). When asked about assessment at the foundation phase level, most principals and teachers were knowledgeable about the requirement,

[27] The Curriculum and Assessment Policy Statement (CAPS) document defines assessment as a continuous planned process of identifying, gathering and interpreting information about the performance of students, using various forms of assessments. Assessment should be both informal (assessment for learning) and formal (assessment of learning).

as stipulated in the Curriculum and Assessment Policy Statements[28] (CAPS). Most teachers reported that they had annual plans that are broken into terms and weeks. These assessment plans were set in accordance with the CAPS document for the foundation phase. Moreover, the assessment tasks that are administered to students correspond to the assessment plans. In describing planning, one of the teachers had this to say:

> *We have a year planner, term and weekly plans, and they are monitored by grade heads.*

However, there was inconsistency in the way principals understood the programme of assessment which is stipulated in the CAPS documents. One school principal seemed to be unaware that at foundation phase level, there are a specified number of formal tasks that have to be administered each term. This may point to a lack of knowledge on the part of principals about the requirements of CAPS. The principal had this to say:

> *It's still tricky with the foundation phase, when it comes to assessment, because they do assessment continuously. They do not do it like we do in senior phase and intermediate phase, where there are tasks that are set for each term. So, it's still tricky but we are trying because they have those tasks that they do continuously. There are CAPS documents for foundation phase, but you don't get something that says these are the tasks for this term in the foundation phase … they do everything daily, so it's something that continues every day.*

Another principal expressed his reservation about the nature of assessment in CAPS. He was critical of the frequency of assessments that teachers are required to administer, as per the CAPS document. According to said principal, CAPS encouraged teachers to assess more than what is desirable. The following is an extract of what the principal said:

> *CAPS will have you do 25 assessments in a term, I suppose, but we would have in the region of five to eight formal assessments … and then there would be informal assessments along the way … but obviously, we have major assessments twice a year after the second term and end of the year when they do their major examination.*

(f) Supervising curriculum implementation

There seems to be disagreement among education scholars regarding the responsibility of monitoring the implementation of the curriculum. On the one hand, some argue that the main responsibility of the HOD is curriculum delivery (Nkonki and Mammen, 2012). These authors maintain that HODs should spend most of their time supervising teaching and learning in their

[28] This is a single comprehensive curriculum and assessment policy document that was developed for each subject to replace Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines in Grades R-12.

respective subject or learning area. This is in line with the distributed leadership framework. On the other hand, other authors are sceptical of delegating curriculum matters to middle managers, regarding the HODs (Hoadley et al., 2009). The authors are critical of distributed leadership due to its lack of conceptual clarity.

Several principals and teachers reported that the monitoring of teachers' work was done by checking that their plans and lesson plans corresponded. These were checked to determine whether they reflected the written work found in students' exercise books and that there was alignment with CAPS requirements. A principal from one school reported as follows:

> *Fortunately, just now, I was requesting their tasks because when there is a problem it is the principal that is accountable. There should be submission of documents in time, assessment should be done. We have an assessment programme that indicates completion of assessment tasks by teachers. This allows us to enter students' marks as soon as assessment tasks are completed. Since ANA will be written soon, from now people should complete their tasks in time.*

The CAPS document and the teacher's lesson plans allowed the principals to be able to supervise the implementation of the curriculum. At some schools, it was a routine that teachers had to submit teaching portfolios to the principal on a weekly basis, as one teacher said:

> *Every Monday morning our files have to go to the principal to see how we are going to teach and for how long we will be doing it and what we were teaching on that particular day.*

A principal from another school also described a similar approach to curriculum implementation monitoring. The principal said:

> *We look at our guide, where you will see that from this term this is the work that the teacher was supposed to do. You look at the formal task whether there is any correspondence between the formal task and the work that the teacher was supposed to do.*

When most of the principals reflected on supervision of curriculum implementation, it appeared that they delegated this function to their HODs. Direct supervision of the curriculum by the principals happened in few schools. This finding is echoed in another South African study, in secondary schools, in which most principals regarded curriculum coverage as the responsibility of HODs (Hoadley et al., 2009). From the two extracts below, it is evident that these two principals used different approaches on supervision of curriculum implementation. The first principal supervised the monitoring conducted by the HOD on implementation of the curriculum by teachers, while the second principal seemed to have delegated full authority for supervision of curriculum implementation to the HODs.

First principal:

> *The HOD will do her duties, but monthly I will go to the classroom, and check, sometimes not reporting to the HOD, just going there to check whether what the HOD reports is actually happening.*

Second principal:

> *We have two HODs at that phase and they are the … I don't want to say experts, but they know what is expected. And when we go to any report, I will sit with them and say explain, explain, explain. I'm not going to know it all, especially when it comes to foundation phase … so I take from what they are saying.*

Overall, these views coincide with a number of earlier findings on instructional leadership, where principals spend minimal time directly attending to teaching and learning, but instead play a more secondary and encouraging role (Kruger, 2003; World Bank, 2018; Heystek, 2015). In one of the aforementioned studies, principals alluded to shared instructional leadership role in their schools and pointed out that the formal aspects of leadership are delegated to subject heads and consequently "their own influence is more indirect and informal" (Kruger, 2003:210).

One way of supervising curriculum implementation is conducting class visits while teachers are teaching, with the purpose of checking the classroom interaction with the students. Class visits (lesson observations) are among the requirements for teacher appraisal, as stipulated in the Integrated Quality Management System (IQMS) (Weber, 2005). This is echoed in earlier South African research on instructional leadership (Bush et al., 2010). When asked whether class visits are conducted in their schools, principals provided different responses. At one school, it was clear that class visits as a component of IQMS were not strictly followed, as one principal had the following to say on this subject:

> *We carry [out] class visits, mostly informally, because there is little time for formal class visits. I always tell my teachers; I am here to assist, to guide and not to judge.*

At another school, the principal indicated the extent to which class visits were conducted at their school. The principal indicated that class visits were not only implemented to comply with IQMS, but were conducted to monitor teaching and learning. This is a similar finding to an earlier case study in which it was found that in some schools, classroom observation was used as a monitoring instrument (Bush et al., 2010). The principal said the following:

> *It's unfortunate that you came here on a Friday. From Monday to Wednesday the HOD, Mr X, visited classes. He schedules visits for observation in class, not for IQMS, but for monitoring*

> *of teaching and learning in class. Mr Y does the foundation phase and Mr X does the intermediate and senior phases. Those class visits motivate teachers because they are developmental. If they come into your class, after that you get feedback … it motivates you to do more. He praises you when you do something good … so it keeps the morale of the people high. These class visits are done monthly.*

A substantial number of teachers expressed their positive attitude towards class visits. They viewed them as a developmental tool to improve their teaching. One teacher said the following:

> *I think this would develop me, so yes, I don't have a problem.*

However, some teachers from affluent schools felt that class visits were not necessary unless someone had an issue with a certain aspect of teaching. Two teachers, from two separate affluent schools, indicated their stance against class visits as follows:

First teacher:

> *No, I don't think so; unless you are really struggling. Then you can have someone to check on you to see if you are on the line, especially for a first teacher with no experience.*

Second teacher:

> *I don't think in this environment. And also, what would the benefits be in that? Like yes, if they come to your class and see you doing this, maybe they could give you advice on certain things, but I think it would be quite difficult. We should all be in a certain line. It could make some teachers feel they are better than others. We are striving to be better and having someone watching you is not really necessary.*

These views were surprising coming from teachers in affluent schools. It would be expected that most teachers in these schools would welcome classroom observation, since they are more often considered experts in their fields that are well prepared for their classes. There is evidence in the "industrial model" of the school that teachers appreciate a high degree of autonomy in their own classrooms (Mosoge and Pilane, 2014). According to the behavioural science literature, strict monitoring can stifle innovation, and encourage average practices. This view underscores that a strict instructional programme might be beneficial to ensure the existence of a minimal level of required practice, but it cannot promote teaching excellence. As such, it is implied that classroom autonomy might be providing an incentive to these teachers, hence the resistance against the 'intrusive' classroom observation of the supervisor. However, there is a counter argument that complete discretion in the classroom is contrary to the ethos of professional accountability (Gill et al., 2016). These authors emphasise that the use of transparency in promoting professional

accountability is contrary to the rule-based approach that perpetuates teacher autonomy instead of accountability.

(g) District support

District support for schools is crucial for the promotion of quality teaching and learning, since education district offices are nearer to the schools. Mavuso (2013) distinguishes between district roles of inspection and support by stressing that the former is perceived as undemocratic, while the latter is understood to be developmental. Mavuso (2013) (citing Lugaz and De Grauwe, 2010; and De Grauwe and Carron, 2007) also points out that district support serves a monitoring function to achieve quality teaching and supervision of schools.

There was a mixed reaction among the school principals regarding their satisfaction with the support they receive from the district education officials. Eight out of 15 school principals highlighted several aspects they were not satisfied with, in regards to the district support. The areas of dissatisfaction that were reported include human resources, infrastructure and curriculum support. A principal from one rural school had mixed perceptions on district support as he said:

> *Yes, we can give them 80%. My EDO (education development officer) is a cheerful person, humble, has lots of positivity and I am closer to him. He tries to fulfil my needs. In the department, the side that is pulling us down is the HR (human resource) side.*

Some school principals were ambiguous about district support. Although they understood that the support of district officials was not adequate, these principals seemed to have empathy towards the officials. They pointed out challenges faced by the district offices, including; understaffing and lack of finances. One principal said:

> *I think that they are having an uphill battle with finances and stuff, but I get along with my EDO very well. They help us where they can. The other stuff is more legal stuff, they can't just give you teachers, there is a whole process, so in general we can't complain.*

However, other school principals revealed their frustrations with the level of support they receive from the district offices. A principal from one township school had this to say:

> *I am satisfied to a certain level. We've been asking for a general worker; we don't have a caretaker and a night watchman here. The school gets broken into time and again. Last year we had three break-ins. We have been asking for classrooms. We have been waiting for 15 years for the school to be built.*

Another school principal from an affluent school also expressed his dissatisfaction and frustration with the level of district support, as follows:

> *Not satisfied. The support is non-existent. Even schools in the rural areas have the same problem that they don't have the support. I hadn't had an official in the school for 15 years. I don't think the department has the capacity of assisting the school. They have enough problems of their own. They are either in a funeral or they are on strike or they've got too few EDOs for instance. Our EDO has got, for instance, 15-20 schools to service … how can you do that … it's impossible. As EDOs leave they don't replace them. So, when you had 15 EDOs, now you have five EDOs, and the schools are being split among them. It's very frustrating in one respect, but we've learnt to live with them now … we get on with what we have to do … we are proud of what we do, we are proud of what we produce, and we can do it on our own.*

The views expressed by principals indicate their understanding and expectation of district support. Mainly, the principals complained about the lack of administrative support from districts. Some of the principals referred to the presence of district support concerning the core business of teaching and learning, but there was no reference to classroom support of pedagogic instruction. It seems that the three education districts were struggling to support schools on non-core issues, such as providing non-teaching staff and buildings, and showing up at some schools.

(b) Teacher vacancies

Teachers are the core staff for the Department of Basic Education and the schools, since they are at the forefront of curriculum delivery. At times, schools lose their teachers due to several reasons. Some teachers leave for better opportunities elsewhere, others retire or resign, while others become incapacitated due to ill-health or death. When a school has lost a teacher, the principal should find a replacement as soon as possible. Several school principals indicated their understanding of the process they should undertake for the filling of teacher vacancies, but there seemed to be differences in addressing the problem of vacancies. Mostly the principals were critical about the pace at which the department of education responded to teacher vacancies. They cited the infrequency of departmental advertisements as a major area of concern.

From the principals' responses, it is evident that the schools do not deal with teacher vacancies in a similar way. For instance, school principals from the historically disadvantaged areas would wait for the departmental advertisements before they could appoint a teacher at the school. In these schools, when a vacancy arises, the workload of the leaving teacher is divided among remaining teachers until the department appoints a new teacher. This scenario is clearly illustrated by the following extract from one of the rural school principals:

> *We share the work among ourselves, like myself, I'm overburdened. We still have vacancies and they are known by the department and we are waiting for interviews.*

However, principals from former Model C schools approach teacher vacancies differently. When there is a vacancy, they process all the necessary documents with the department, but they publish their own advertisements through the media and make SGB appointments since they have more funds drawn from the school fees they charge. Once the department publishes the advertisements, the SGB-appointed teacher would be absorbed permanently into the departmental post. One former Model C principal described the process as follows:

> *It would be very nice if the department had gazettes regularly, which they don't … so in most cases when somebody from a department post leaves, we have got to fill that post with a governing body person. So, we would advertise in the local press and we would then interview those shortlisted folks and we would appoint the best person we know.*

Based on the above extract, the effects of teacher vacancies would be more pronounced in the historically disadvantaged schools. The extended lag between identification of a vacancy, and the ultimate filling of such a vacancy by the department, would imply that teaching and learning in these school is hampered far more than teaching and learning in affluent schools. It is not yet clear whether the problem is with the inability of the schools to plan, or the inability to supplement departmental funding with supplementary funding via school fees, like the former Model C schools.

(i) Teacher unions

The post-apartheid South Africa has experienced a rise in political activism and union activism. This development is not surprising given the political history of South Africa. The education sector has not been spared from unionism. Trade unions are legal entities that are meant to protect the rights of workers. In the education sector, teachers, as workers, have unions that advocate for the right of teachers. These rights or causes include salary increases and improved working conditions, such as housing allowances and medical aid, along with other benefits. There are several unions that represent teachers, and they include the South African Democratic Teachers Union (SADTU), the National Professional Teachers' Organisation of South Africa (NAPTOSA), Suid-Afrikaanse Onderwysunie (SAOU), and others.

In recent years, there has been a perception in the media that the activities of some dominant unions, especially SADTU, which is an affiliate of the Congress of South African Trade Unions (COSATU), have been detrimental to teaching and learning in schools.

In the interviews of this study, the sampled principals and teachers were asked to report their perceptions and experiences of union activity in their schools. As expected, there were mixed responses on this topic, with most respondents indicating that there were disturbances that were

caused by SADTU activities, especially meetings during working hours. One principal from a township school said:

> *Let me be open here. In this district, when the unions are having meetings, they start from 12. We break at 12 and go to our union meeting and that is one problem that we have. These are the things that hamper teaching and learning because we break two hours before [official closing] time.*

Another principal from a township school also expressed her dissatisfaction about the conduct of SADTU members:

> *I was a chairperson of SADTU far back. Then we used SADTU as a sharp knife in both sides. To be a SADTU member then, you should be an example at school. But now, you'll find that a SADTU member is a spoiler in the school, especially if she is site steward. Every day, SADTU, SADTU, going to meetings, et cetera. She will not even care what provision is done to cover her during her absence. If you go to SADTU to ask, they will turn against you.*

The interference of SADTU with the tuition time was admitted by one of the school principals, who was also a branch executive member. The principal responded as follow:

> *I am secretary of SADTU. When I am addressing teachers, I tell them that when we release you from schools you do your own business in town. Our resolution was that teachers should not leave schools before 12.*

Another principal expressed his frustration about SADTU's lack of regard for tuition time. The principal indicated that in his school, half of the teachers belong to SADTU and the other half to NAPTOSA. He went on to say:

> *So, if SADTU has a meeting, it's impossible to carry on with teaching and learning if half of the staff is gone. Meeting start at 11; they will come and say we want to leave at 10. I will just phone the department and say 'What do I do now? I cannot run the school with half of the staff'.*

This principal also indicated that some SADTU members in his school were even refusing to be visited in class for monitoring purposes, saying that they first needed to consult with their union.

However, another principal who had teachers that belong to both these unions, SADTU and NAPTOSA, had a way to manage the issue of meetings by insisting that the teachers leave at 1 o'clock. He stated this as follows:

> *I think that there is a place for unions, but they shouldn't interfere with the day-to-day running of schools. I won't mention names, there [are] unions that want to have meetings during school hours. That we don't allow, and we share information with members of our staff and we tell them, look*

> *you can go at that time but you can't go at 10. SADTU is very fond of that. I think most principals won't have a problem letting their SADTU members go, say, at 1 o'clock to attend, but we can't allow 10 o'clock, you understand? What about the classes. My staff understand that I can't let them go at 10 … they must teach.*

4.4.5 Conclusions from qualitative research

A study which aimed to measure management quality in schools, using standardised surveys to codify management practices (Bloom, Lemos, Sadun, and Van Reenen, 2015), found that management practice scores were associated with school leadership and accountability for student performance to an external body. In this research, it was found that instructional time was not honoured as per the stipulation of the policy. Most principals avoided dealing with non-adherence to instructional time policies, as there were rare instances where rules and policy were enforced. Generally, principals demonstrated understanding of processes for monitoring curriculum implementation. However, it appeared as if the supervisors were more interested to see congruence of teacher plans with the content taught, without paying much attention to quality of what was taught. In this regard, evidence suggests that some principals abdicated the responsibility of curriculum monitoring to their HODs and thereby were not directly apprised about the actual teaching and learning in the classrooms.

District support was also a challenge, and this indicates that the problem is not limited to school level. This is problematic, in light of recent evidence (Muralidharan et al., 2017) that increasing school inspection contributes greatly in reducing teacher absence. Given the weak authority of principals caused inter alia by strong union influence, district officials should ensure teacher accountability in schools by visiting schools frequently to monitor teachers' schoolwork. Finally, it was clear that accountability lines are not clear. Most principals appear to be accountable to union leadership instead of departmental officials.

4.5 MULTIVARIATE ANALYSIS FROM TIMSS 2015 DATASET

In this section, student achievement is modelled using the TIMSS 2015 dataset. An effort to gain a better understanding of what influences student learning can benefit educators and policymakers, "…since it is through multivariate analysis that one can tease out which of the many possible explanatory variables are most closely associated with student learning" (Spaull, 2012:9). In the educational context, many variables are highly correlated with one another, and it is possible to erroneously draw conclusions from bivariate analysis of such variables. For instance, from a cross-tabulation of teacher qualifications and mathematics scores using data from South African TIMSS, it may on the surface appear as if there is a clear relationship between the two variables. However,

there are a myriad of other variables that influence student performance in mathematics, including socioeconomic statuses of students, access to textbooks, language of teaching and learning at home, level of parental education, along with many other variables. Some of these variables may, in turn, be correlated with teacher qualifications in certain schools. Multivariate analysis can better isolate correlations between variables, as opposed to only utilising a bivariate analysis, and provide some indication of mechanisms that influence student learning as it holds other correlates constant.

Using the TIMSS 2015 South African data, an education production function method was employed to model the mathematics performance of South African grades 5 and 9 students. With almost all retrospective data, there are certain statistical problems that should always be considered. These include omitted variable bias[29], endogenous programme placement[30] and measurement error[31] (Glewwe and Kremer, 2006). Due to the cross-sectional nature of the TIMSS data, it was not possible to use alternative approaches, for example, panel data analysis. Thus, caution was exercised when interpreting the results and drawing inferences from the education production function analysis, with the coefficients interpreted as conditional correlations (Spaull, 2012).

The empirical analytical framework used in this part of the study is adapted from Dong and Cravens' (2011) six-core components learning-centred leadership model. Unlike in TIMSS 2007, TIMSS 2015 does not cater for performance accountability measures, such as observation by principal, observation by external inspection, teacher peer review and incentives to recruit or retain teachers. Therefore, the performance accountability component was substituted with a school discipline component as represented by teachers' absence from school and teachers' late arrival at school. School discipline is very pertinent in the context of South African school education. Several studies highlight discipline in South African schools as instrumental in student achievement. Figure 4-2 shows the main components of the modified learning-centred leadership model.

[29] Omitted variable bias occurs if any of the unobserved elements in econometric estimation that are part of the error term are correlated with the observed variables in the dataset. Examples of variables that are almost impossible to observe include the child's innate ability and motivation, parents' willingness and capability to help their children with schoolwork, teachers' interpersonal skills and motivation, and management skills of school principals.

[30] Endogenous programme placement occurs when government deploys educational inputs in areas that already have good education outcomes. Motivation for that may emanate from political influence these areas may have, the areas may pay more taxes, and may put higher weight on education than other areas when selecting how to spend the resources they get from the central government.

[31] Measurement error is the difference between the value of a characteristic provided by the respondent and the true, but unknown, value of the characteristic.

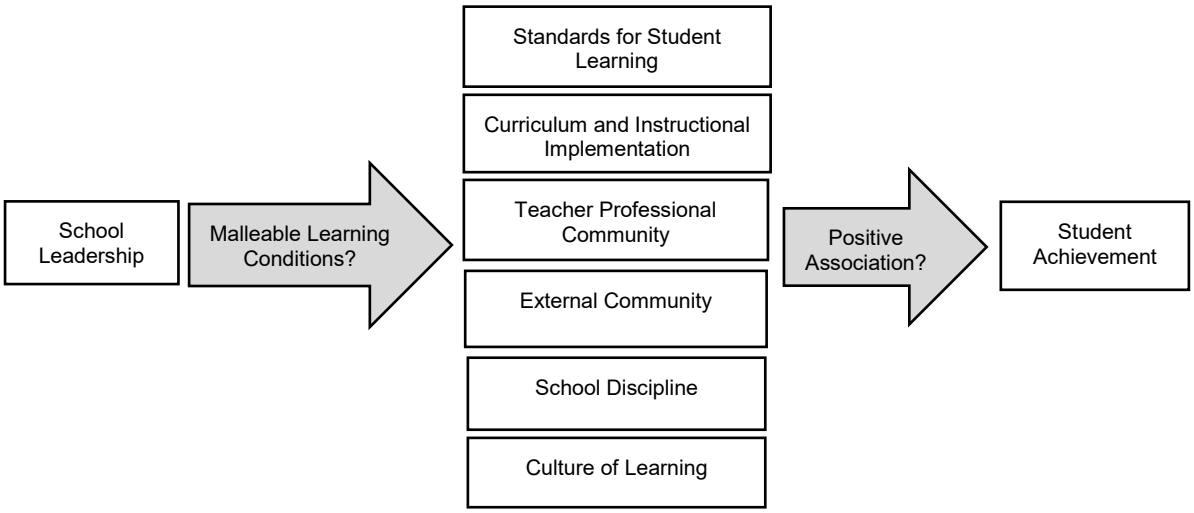


Figure 4-2: Analytical framework

Source: Dong and Cravens, 2011

Each component of the learning-centred leadership framework captures specific TIMSS questionnaire items from school and teacher backgrounds. Within the culture of learning component, questions for teacher motivation were included in line with the qualitative component of this study. In addition to learner motivation, teacher motivation plays a significant role in the culture of learning.

In the next section, it is argued that the data used in this part of the study, which comes from TIMSS, consist of a rich collection of schools, teacher and student variables. After explaining the data and describing the overall mathematics results, the method employed in the study is explained. This is followed by descriptive and regression results. The last section concludes.

4.5.1 Data

The data used within this study is the sixth administration of the TIMSS assessment conducted in 2015. TIMSS is an international assessment of mathematics and science knowledge of Grade 4 and 8 students. It was developed by the International Association for the Evaluation of Educational Achievement (IEA) to allow participating nations to compare students' educational achievement across countries. TIMSS was first administered in 1995, and every four years thereafter – 1999, 2003, 2007, 2011 and 2015. The assessment is designed to align broadly with mathematics and science curricula in the participating countries. The results display the extent to which students have mastered mathematics and science concepts and skills which are supposed to have been taught in school (LaRoche, Joncas, and Foy, 2016).

In this large-scale assessment, student performance in mathematics and science in Grades 4 and 8 was tested using multiple-choice questionnaires. Performance results in TIMSS are reported on a scale that has an average of 500 and a standard deviation of 100 points (Dong and Craven, 2011). TIMSS also collects background information on students, teachers and schools to allow for comparison among countries of educational contexts that may be related to student achievement. The advantage of TIMSS, particularly to this study, is the extensiveness with which it collects data on school leadership and management, instructional time and professional development of teachers (LaRoche et al., 2016).

Internationally, the TIMSS target population at the lower grade level is all students in their fourth year of formal schooling, and at the upper grade, all students in their eighth year of formal schooling. TIMSS uses UNESCO's International Standards Classification of Education (ISCED) 2011, which provides an internationally acceptable classification scheme for describing levels of schooling across countries. The first year of ISCED Level 1[32] corresponds to a transition point in the education system that marks the beginning of systematic teaching and learning in reading, writing and mathematics. Four years after the first year of ISCED Level 1 would be the target grade for fourth grade TIMSS, which is the fourth grade in most countries. Similarly, eight years after the first year of ISCED Level 1 is the target grade for eighth grade TIMSS, which is the eighth grade in most countries. However, TIMSS aims to avoid testing very young students given the cognitive demands of the assessments. Therefore, if the average age of students at the time of testing would be less than 9.5 years for the fourth-grade, and less than 13.5 years for the eighth-grade, TIMSS recommends assessing the next higher grade (that is, the fifth grade TIMSS and ninth grade for TIMSS, respectively) (LaRoche et al., 2016).

In South Africa, the school admission policy states that children must be five years old and have their sixth birthday by June 30th of the following year to be accepted in grade 1 (South African equivalent of first year of ISCED Level 1) during the pertaining year (Republic of South Africa, 2002). For the fourth grade, the average age of many students in South Africa four years after grade R would be less than 9.5 years, and for the eighth grade, their average age would be less than 13.5 years. In earlier TIMSS assessments, when Grade 4 and 8 students were tested, the South African data showed that a high number of students did not attempt to answer many of the items, which made estimating achievement scores very difficult. Thus, to provide better estimates and to follow TIMSS' recommendations, in 2003 South Africa tested Grade 5 and 9 students (in addition

[32] ISCED Level 1 corresponds to primary education or the first stage of basic education.

to Grades 4 and 8), and in 2011 and 2015, only Grade 5 and 9 students were assessed. For the purposes of this study, only Grade 5 and 9 mathematics scores are considered.

The TIMSS 2015 sample for South Africa's Grade 5 and 9 students was drawn from the Department of Basic Education's 2013 master list of all schools in the country. The list comprised of 17 824 schools (16 682 public and 1 142 independent schools) that offered Grade 5 classes, and 10 009 schools (9 099 public and 910 independent schools) that offered Grade 9. The South African sample is stratified based on the province, school type (public and independent), and language of learning and teaching (Afrikaans, English and dual-medium). Altogether a total of 10 932 Grade 5 learners from 297 schools and 12 514 Grade 9 learners from 292 schools took part in the study, including 298 and 334 mathematics teachers, respectively. The large size of the dataset makes TIMSS 2015 highly suitable for analysing the association between instructional leadership variables and student performance outcomes (LaRoche et al., 2016).

At the fourth grade level, 49 countries participated in the TIMSS 2015 study, with only Norway and South Africa taking part at the fifth-grade level. A total of 39[33] countries participated in TIMSS 2015 study at the eighth grade, and three countries took part at the ninth-grade level (Norway, Botswana and South Africa). Of the total participating countries, despite its grade-level advantage, South Africa was the second lowest performing country in both grades in mathematics, with an average score of 376 points for Grade 5 and 372 points for Grade 9[34]. For both grades, South Africa scored more than one standard deviation below the midpoint.

(a) Socioeconomic status variables

Since the seminal Coleman report (Coleman et al., 1966), there has been a great emphasis on how the collective socioeconomic statuses (SES) of students in a school can influence individual student achievement. There is empirical evidence that schools with a relatively high number of socioeconomically disadvantaged students perform poorly due to weaker teaching and learning cultures (TIMSS 2015). There is also agreement among scholars that educational achievement amongst South African children is strongly associated with SES (Taylor, 2011; Taylor and Yu, 2009; Van der Berg, 2007). An extensive survey, such as TIMSS, does not contain information about household income or expenditure, since students are not expected to provide reliable

[33] Countries that participated in the TIMSS 2015 assessment are listed alphabetically as follows: Australia, Bahrain, Botswana, Canada, Chile, Chinese Tapei, Egypt, England, Georgia, Hong Kong SAR, Hungary, Iran (Republic of), Ireland, Italy, Japan, Jordan, Kazakhstan, Korea (Republic of), Kuwait, Lebanon, Lithuania, Malaysia, Malta, Morocco, New Zealand, Norway, Oman, Qatar, Russian Federation, Saudi Arabia, Singapore, Slovenia, South Africa, Sweden, Thailand, Turkey, United Arab Emirates, United States.

[34] Singapore had the highest scores for both mathematics and science, with 621 points for mathematics and 597 points for science.

information on these variables. It is, therefore, a common practice to derive household asset-based measures of SES. In TIMSS 2015, the student questionnaire asked Grade 9 students about the presence of several possessions or assets in their homes.

Using the student background questionnaire, TIMSS 2015 collected data on several students' home assets. The asset data was used to estimate an asset index using multiple correspondence analysis (MCA) to serve as a proxy for students' SES. MCA is recommended for the construction of an index using only categorical variables (Spaull, 2011:7; Howe et al., 2008). A total of 13 variables[35] were used in the construction of the asset index for the two grades studied.

The factor loadings of the individual variables are reported in Table A3-27, for both Grade 5 and Grade 9 datasets. It was hypothesised that the ownership of assets by students from higher socioeconomic background would contribute positively to asset index scores (Table A3-27). There is one asset, the television, for which ownership contribution is slightly positive in both indices (0.35). However, the two indices attach the highest positive contribution to two different assets. For the Grade 5 asset index, the highest ownership contribution of 1.6 is for the number of books, while for Grade 9 the same highest weight is for the gaming system. These assets were more likely to be found in the households which the asset index estimated as the wealthiest households in the sample(s). The first dimension of MCA accounts for 89.1 percent and 89.0 percent of inertia (variation) for Grade 5 and 9 respectively, and it is this dimension that is used to estimate the asset indices. The asset index scores range from -2.8 to 1.6 and -3.8 to 1.6 for Grade 5 and Grade 9.

An additional variable (school SES) was derived from student SES by taking the average of all the students' SES scores in each school and assigning this average to each student as a school SES variable. Figure 4-3A-B and Figure 4-4A-B show boxplots of mathematics achievement by school quintile (Figure 4-3A-B) and provincial distribution (Figure 4-4A-B). The information in Figure 4-3A-B shows that students studying in schools belonging to the highest quintile (quintile 5) perform relatively better than those in schools belonging to the lower quintiles. In an earlier study, Spaull (2011), using SACMEQ III data, also concluded that the student performance distribution was bi-modal, such that there was a distinct split in scores between the top quintile, in comparison to the bottom-four quintiles, indicating a possibility of two data-generating processes at play. Information in Figure 4-4A-B also attests to the dissertation of two data-generating processes. In South Africa students that study in schools situated in affluent provinces, such as Gauteng and

[35] Asset index variables include the following home possessions: cell phone, computer, shared computer, internet connection, gaming system, own room, study desk, electricity, running tap water, television, dictionary, number of books and number of digital devices.

Western Cape, have higher mathematics scores for both grades, while those in schools situated in poorer provinces, such as the Eastern Cape and Limpopo, have lower mathematics scores.

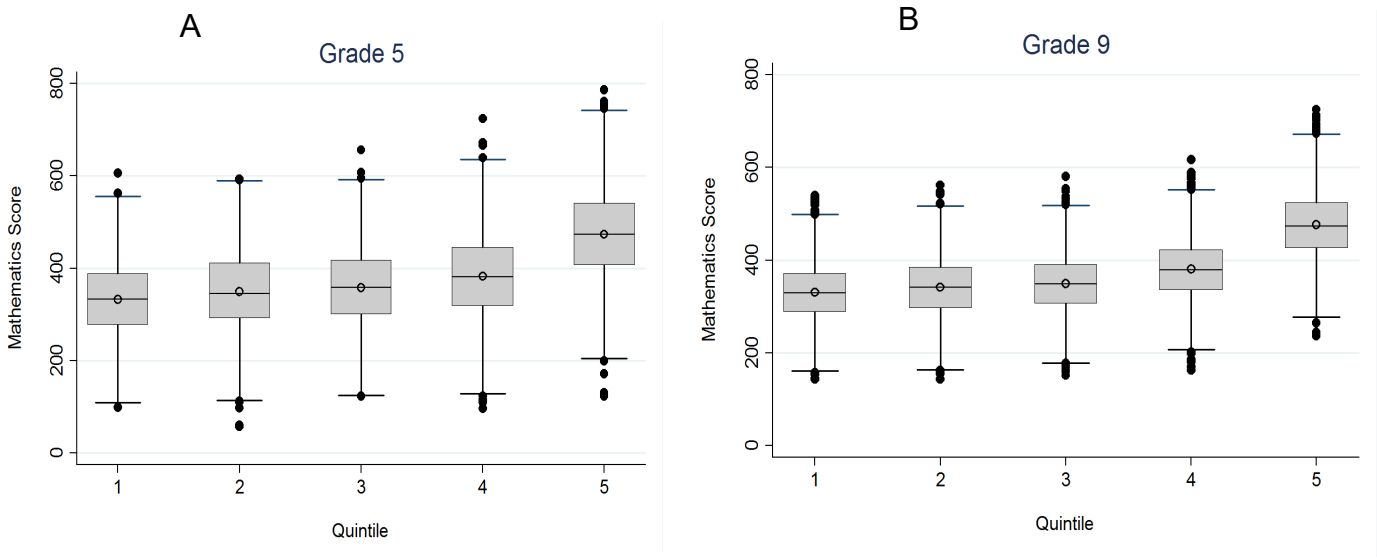


Figure 4-3 A-B: Boxplots of Mathematics scores by quintile of school mean SES

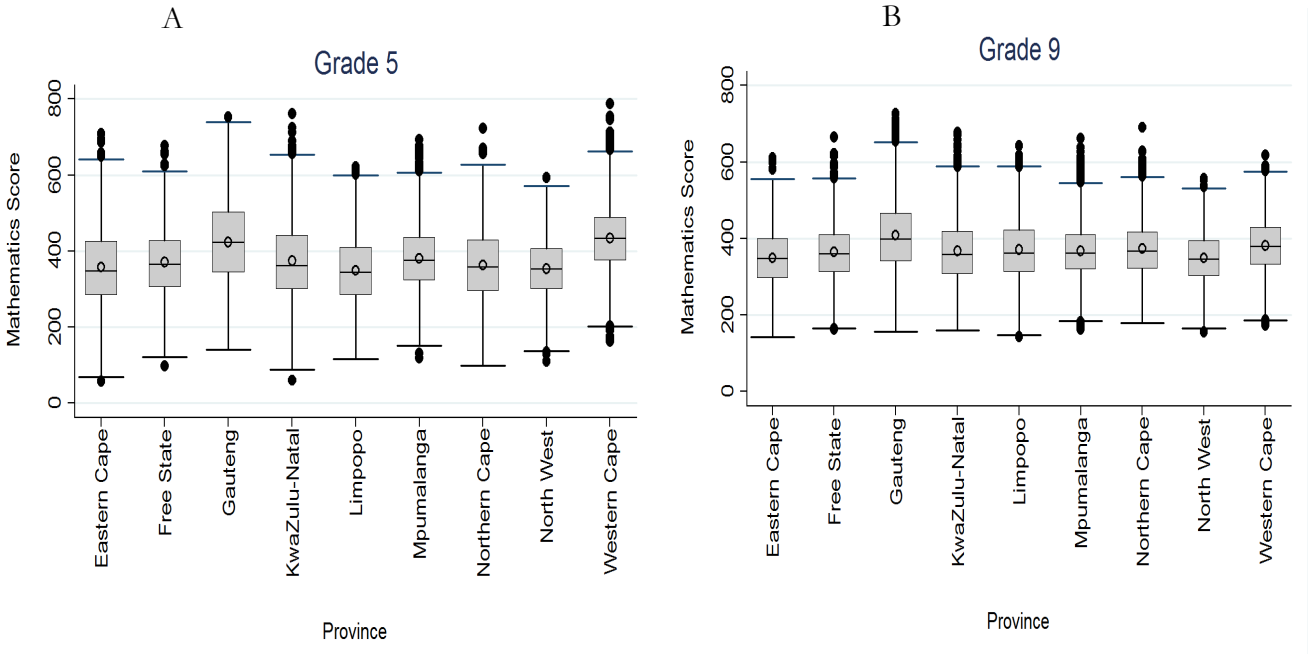


Figure 4-4 A-B: Boxplots of Mathematics scores by provinces

Table 4-4 indicates and confirms that the mean performances of school quintile is predominantly unchanged between the lowest quintiles and the second highest quintile. However, students' marks in the most affluent quintile increase by more than 25 percent for both mathematics and science. Considering that the highest quintile comprises the proportion of students performing at or more than 500 (the TIMSS mean) and/or above or below 400 (one standard deviation across all participating countries below the mean) the richest quintile again outperforms the rest of the quintiles. This is consistent with findings from previous research (Van der Berg, 2008: 146).

Table 4-4: Distribution of Grade 9 student performance across school quintiles by means of SES Schools

School SES quintile	Mean	Standard deviation	% with mark above	% with mark below 400
Student Mathematics scores				
Quintile 1	*330.53*	*62.73*	*1.25*	*23.02*
Quintile 2	341.68	64.35	1.93	26.27
Quintile 3	348.54	63.79	3.30	25.92
Quintile 4	380.52	65.18	12.27	21.39
Quintile 5	476.60	73.48	81.25	3.40
Total	371.42	81.74	7.03	66.99
Student Science Scores				
Quintile 1	300.31	78.79	1.02	23.08
Quintile 2	315.89	81.10	1.67	26.54
Quintile 3	329.08	81.89	4.36	25.53
Quintile 4	372.15	79.91	14.66	21.26
Quintile 5	485.22	85.54	78.29	3.59
Total	355.66	101.69	8.61	69.10

(b) Instructional leadership variables

As this study's aim is to examine the association between instructional leadership and student achievement, it was essential to identify variables which deal with the leadership role of the principals. In this regard, it should be noted that TIMSS 2015 school and mathematics teacher questionnaires included several identical questions regarding school learning conditions. Based on the theoretical literature, selected variables were grouped into six measures of learning conditions, with minor modifications[36], which are likely to be influenced by instructional leadership: (a) standards for student learning, (b) curriculum and instruction implementation, (c) teacher

[36] The learning condition for performance accountability was substituted with school discipline due to data unavailability for the former.

professional community, (d) external community, (e) culture of learning, and (f) school discipline, following the example of Dong and Cravens (2011).

Questions on school leadership and management involved asking school principals the extent to which teachers understand the school's curricular goals and the extent to which teachers are successful in implementing the school's curriculum. The school principal's responses to these questions provided an indication of the extent of instructional leadership they provide to the school. The same set of questions on school leadership was also asked from teachers. Other questions that are related to school leadership include questions on teachers' absence from school, teachers' late arrival at school, the frequency of mathematics homework provided to students and satisfaction of teachers with teaching as a profession.

In addition, control variables were included for the background of schools, teachers and students. These variables were carefully selected based on the literature.

The dependent variable for the analyses was the first of five plausible values[37] for mathematics and science scores of each student from TIMSS 2015. The explanatory variables were derived from contextual questionnaires administered to the school principals, mathematics teachers, and students sampled. These variables will be discussed further within this study.

4.5.2 Method

The retrospective TIMSS data was analysed using bivariate and multivariate methods. The variables found in TIMSS are a mixture of continuous, categorical, and binary variables. After creating binary versions of the instructional variables, t-tests (mean-comparison tests) were used to determine the statistical significant difference between the two means for each binary variable.

In an education production function, various student, teacher and school characteristics are used to explain student achievement. The analytical strategy encompassed an iterative process where various variables were included which proved to be strongly related to student achievement. For ease of interpretation, all the continuous variables were standardised to take a value between 0 and 1, after which the categorical variables were coded as dummies, that is, taking on a value of either 1 or 0.

The basic education system in South Africa can be described as consisting of two sub-systems. On the one hand, there is a high achieving functional system that comprises historically privileged schools, while on the other hand, there is a low performing dysfunctional system that primarily

[37] Plausible values are multiple values representing the likely distribution of a student's proficiency. They are based on student responses to the subset of items they receive. They are not individual scores in the traditional sense, and should, therefore, not be analysed as multiple indicators of the same score (von Davier, Gonzalez, and Mislevy, 2009).

consists of historically disadvantaged schools (Van der Berg, 2007; Taylor, 2011; Spaull, 2011). When analysing any characteristic that affects student performance, it is imperative to consider this dual education system to avoid bias. Reliance on a single model might persuade a researcher to believe that there is a relationship between student performance and a variable, whilst that 'relationship' may be propelled by differences between the two systems (Taylor, 2011). Cognisant of the bimodal distributions of student scores for mathematics as reflected by the descriptive statistics, two sets of regression models were run to establish if similar factors pertaining to school leadership are equally important for each of the sub-sets of students. The two sets of models are as follows:

1) The first model is a general regression model without any restrictions imposed.
2) The second model, SES restriction, consists of two regression models restricted to different SES quintiles of schools. The first specification is restricted to the top SES quintile, while the second specification is restricted to the bottom four quintiles.

Within each of the three models, four sets of instructional leadership variables were separately regressed as the main variables of interest. These variables are described in Table 4-5.

Table 4-5: Instructional leadership variables

	All models
1st set of variables	Principal-reported teachers' understanding of curricular goals Teacher-reported teachers' understanding of curricular goals
2nd set of variables	Principal-reported teachers' degree of success in implementing curricular goals Teacher-reported teachers' degree of success in implementing curricular goals
3rd set of variables	Principal-reported teachers' absence from school
4th set of variables	Principal-reported teachers' late arrival at school
5th set of variables	Frequency of homework exercises
6th set of variables	Satisfaction with being a teacher

The student probability weight and the classrooms were used as the primary sampling units (PSUs). The probability weights are adequate for handling random samples, where the probability of being sampled varies. However, since the students are not sampled independently, but are sampled in schools and/or classrooms, the estimates' vce (cluster *clustvar*) option is specified, where *clustvar* is the classroom (StataCorp, 2013). Student performance in the same classroom or school may not

be independent. Students in the same classroom or school may display similar attributes, such as study habits, attitudes, being taught by the same teachers, along with other similar variables and these may influence their performance scores. The use of classrooms as the PSUs allowed for the sample stratification and the clustering of standard errors to be taken into account. The unit of analysis throughout the study is students. Using students as the unit of analysis allows for an analysis which is representative of the population. When analysing the instructional leadership variables, relative to student achievement, the aim is to examine how students' performance varies in response to the presence or absence of these variables at schools.

4.5.3 Results and discussion

(a) Sample characteristics

A summary of the sociodemographic characteristics of the sample is provided in Table A3-28 in the Appendix. Most students attended schools in small towns or villages (Grade 5: 31.6 percent; Grade 9: 33.1 percent) and remote rural areas (Grade 5: 27.5 percent; Grade 9: 29.8 percent). A substantial number of students (65 percent) spoke less of the language of instruction, English, at home for both grades. There was also a high percentage of Grade 5 and Grade 9 students (32.7 percent and 39.6 percent respectively) who were taught in schools in which the principal had relatively little experience (with 0 to 5 years of total principal experience). Similarly, there were students who experienced 40.1 and 46.8 percent, respectively, of principal experience at their present school, in the case of Grades 5 and 9 respectively. Most students (66.2 percent and 77.6 percent in Grades 5 and 9 respectively) were taught in schools where principals were adequately qualified with bachelor's degree or equivalent.

(b) Descriptive findings

Table A3-28 in the Appendix shows principal-reported and teacher-reported perceptions on the main explanatory variables. Stark differences were found between principals' and teachers' perceptions across the instructional leadership variables in TIMSS 2015 school and teacher questionnaires. This finding was similar to a finding expressed by Dong and Cravens (2011) in their analysis of TIMSS 2007 questionnaire items. However, contrary to Dong and Cravens' study where principals reported higher average ratings than teachers, this study found that teachers consistently reported higher ratings (on a scale from 1 = very high to 4 = low) than principals on both teachers' understanding of curriculum goals and their degree of success in curriculum implementation (see Table A3-28). This finding applied to both Grade 5 and 9 results.

As reported by principals, time spent on teaching was not adversely affected. As Table A3-28 illustrates, it was found that principals reported minimal occurrence of the incidence of both

teacher absence and late arrival at school. The principals, however, reported slightly higher rates of teacher absence (27.1 percent versus 16.5 percent) and late arrival at school (17.9 percent versus 10.5 percent) in Grade 9 as opposed to Grade 5 (on a scale from 1 = not a problem to 4 = serious problem). The percentages provided consist of ratings where principals reported moderate and serious problems based the occurrence of teacher absence and teachers' late arrival at school.

Regarding the frequency of mathematics homework assigned to students, a higher percentage of teachers in Grade 9, compared to Grade 5, reported giving their students homework frequently, where frequently refers to assigning homework three or four times a week to every day. However, in terms of teacher satisfaction (on a scale of 1 = very often to 4 = never or almost never), a significant number of teachers (26.2 percent) in Grade 9 reported that they were not satisfied with being a teacher.

(c) Regression analysis and results

As Spaull (2011) notes, it is complicated to isolate the impact of different variables during quantitative analysis on education data, particularly in the South African context. The complications arise due to the interdependence of variables and the consequent difficulty in disentangling the multi-directional causation between them. For instance, in an instructional leadership study, a significant teacher qualification variable "completed first degree or honours" might be interpreted such that the variable was the cause of the positive impact on student achievement. On the other hand, the large coefficient might be more attributable to higher teacher qualifications being correlated with good school leadership, such that highly qualified teachers are attracted to teach in well-managed and well-led schools.

To determine the association of instructional leadership variables with student performance, different types of instructional leadership variables were regressed on student mathematics scores. Initially, the regression was undertaken on the instructional leadership variables and control variables in one regression, but when combining the instructional leadership variables in one regression, multicollinearity exists as these variables might be measuring the same underlying concept. Thus, different instructional leadership variables were regressed with control variables, separately. Teachers' understanding of curricular goals (both principal-reported and teacher-reported) were assessed initially as the main variables of interest. This was followed by the teachers' degree of success in implementing curricular goals. Thereafter, teachers' absence from work was used as the main variable of interest. Finally, teachers' late arrival at school was used.

Table 4-6 summarises the expected signs of coefficients and the rationale for the expected signs.

Table 4-6: Expected sign and rationale of variables included in regression analysis

Variable	Expected sign	Rationale
Teachers' understanding of curricular goals	Positive	The understanding of curricular goals by teachers is expected to be translated into better academic performance by students.
Teachers' degree of success in implementing curricular goals	Positive	As curricular goals are implemented in the classroom, students are expected to perform better.
Teachers' absence from schools	Negative	When teachers are absent from school, tuition is negatively affected. As a result, students are expected to perform poorly.
Teachers' late arrival at school	Negative	Like teacher absence, late arrival affects instructional time and consequently students are expected to perform poorly.
Frequency of homework exercises	Positive	The higher the number of homework exercises provided to students, the better their academic performance.
Satisfaction with being a teacher	Positive	When teachers are satisfied with their job, their performance improves and so the students' academic performance
Student socioeconomic status	Positive	Students from better socioeconomic backgrounds are expected to perform better at school.
School socioeconomic status	Positive	A higher school's socioeconomic status is expected to improve the academic performance of students.

Table 4-7 reports the results of ordinary least squares (OLS) regression models which predict mathematics achievement in Grade 5 and 9, when variables of teachers' understanding of curricular goals are the main variables of interest. As in Taylor (2011:75), the manner of interpretation for each coefficient depends on whether the considered explanatory variable is a continuous or a binary ('dummy') variable. For instance, student SES is a continuous variable with a standard deviation of one. In the full-sample model, reported in Table 4-7, the coefficient on 'Student SES' is 4.024 for Grade 5. This implies after controlling for all the other explanatory variables in the model, a one standard deviation increase in student SES is related to an improvement of 4.0 percentage points in Grade 5 mathematics achievement. The variable for teacher-reported teacher's understanding of curricular goals is a binary dummy variable taking a value of either one, students are taught by teachers who have an understanding of curricular goals, or zero, and students are taught by teachers who have no understanding of curricular goals. In Table 4-6,

regarding the Grade 5 mathematics full-sample model, the coefficient of 21.15 indicates that being taught by a teacher who self-reports having a one standard deviation higher understanding of curricular goals is associated with Grade 5 mathematics achievement that is 21 percentage points higher.

The results suggest the presence of a strong association between teachers' understanding of curricular goals and student achievement at the Grade 5 level. This finding held true for both the principal-reported and teacher-reported measures, although the significance was not found in all the models. In the case of the principal-reported measure of teachers' understanding of curricular goals, the association with student achievement was found to be strong in the highest quintile, whereas in the teacher-reported measure, the association appeared to be strong in the whole sample and the lower quintiles. However, the association between both the principal-reported and teacher-reported teachers' understanding of curricular goals and student achievement was found to be positive, but insignificant, for Grade 9. This was in line with findings by Dong and Cravens (2011).

Table 4-7: Teacher understanding of curricular goals for both grades

	Grade 5			Grade 9		
	Whole sample	**Quintile 5**	**Quintile 1-4**	**Whole sample**	**Quintile 5**	**Quintile 1-4**
Principal-reported teachers' understanding	7.452	20.24**	5.671	6.821	7.540	6.594
	(7.242)	(9.269)	(7.252)	(4.290)	(7.177)	(4.265)
Teacher-reported teachers' understanding	21.39**	16.09	21.49**	7.075	7.667	6.605
	(8.536)	(11.68)	(8.545)	(4.783)	(8.725)	(4.744)
Student SES	3.976***	8.368	2.196	1.644	13.40	-1.720
	(1.315)	(38.30)	(2.626)	(1.002)	(101.6)	(1.607)
Student SES squared	-2.632**	0.478	-5.181***	-0.902	-2.623	-2.506***
	(1.084)	(13.35)	(1.665)	(0.646)	(41.84)	(0.906)
School SES	64.09***	102.4***	58.57***	74.65***	74.63***	72.79***
	(6.590)	(11.83)	(7.155)	(6.136)	(9.883)	6.782)
School SES squared	32.39***	9.093	30.73***	44.73***	44.67***	43.33***
	(5.572)	(10.85)	(5.960)	(4.741)	(11.68)	(5.286)
Constant	308.6***	286.1***	309.6***	321.2***	305.8***	322.8***
	(12.75)	(31.52)	(13.24)	(7.194)	(60.97)	(7.150)
Observations	9124	1873	7321	11394	2104	9290
R-squared	0.422	0.598	0.267	0.467	0.571	0.319

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Other controls: Instructional time, Grade enrolment, Economic disadvantage, Area type, Principal qualifications, Principal experience, Principal experience at current school, Teacher's gender, Teacher qualification, Teacher age, Student age, Student gender, Language of test spoken at home.

As expected, student SES was positively associated with mathematics achievement in TIMSS 2015. This finding was significant only for the full sample, whilst the size of the coefficient was very large for the higher quintile and very small for the lower quintiles. This may be attributed to differences in resources between children from affluent home backgrounds and those from poor home backgrounds. The student SES coefficient for mathematics, in all models, was positive and the square negative, meaning that higher student SES was correlated with rise in mathematics performance but with a concave shape. However, the school SES, and the square thereof, were both positive and contributed a significant and substantial impact towards student achievement for mathematics in all the models and in both grades. This implies that once students are placed in school, it is the school's SES that plays a prominent role in performance rather than the SES of the individual. The positive coefficient of the square of the school's SES indicates a convex shape – at higher levels of school SES the gradient increases even further.

Table 4-8 reports the results of OLS regression models that predict mathematics achievement in Grade 5 and 9 when variables for teachers' degree of success in implementing curricular goals are the main variables of interest. In Grade 9, the association between principal-reported teachers' degree of success in implementing curricular goals and mathematics achievement is significant for all the models, while for Grade 5 the association is not significant. However, for the teacher-reported teachers' degree of success in implementing curricular goals the association is significant and highly pronounced in Grade 5. For Grade 9, the association between teacher-reported teachers' success in implementing curricular goals is only significant in quintile 5.

Again, student SES was positively associated with mathematics achievement and this was significant only for the full sample. The student SES coefficient for mathematics, in all models, was positive, meaning that one standard deviation increase in student SES was related to an increase in mathematics attainment. The school SES, and the square thereof, contributed a significant and substantial impact towards student achievement for mathematics in all the models and in both grades.

Table 4-8: Teachers' degree of success in implementing curricular goals

	Grade 5			Grade 9		
	Whole sample	**Quintile 5**	**Quintile 1-4**	**Whole sample**	**Quintile 5**	**Quintile 1-4**
Principal-reported teachers' degree of success	1.921	-0.958	2.282	11.36***	16.73**	10.58**
	(6.285)	(9.669)	(6.233)	(4.294)	(6.742)	(4.268)
Teacher-reported teachers' degree of success	25.70***	22.38**	25.77***	5.594	20.20***	3.261
	(6.755)	(9.621)	(6.880)	(4.311)	(7.018)	(4.274)
Student SES	3.918***	3.116	1.840	1.679*	18.76	-1.696
	(1.317)	(37.77)	(2.549)	(0.994)	(97.47)	(1.611)
Student SES	-2.670	1.942	-5.421***	-0.851	-4.547	-2.466***
	(1.105)	(13.15)	(1.660)	(0.649)	(40.08)	(0.925)
School SES	61.28***	100.7***	55.45***	73.94***	69.51***	72.81***
	(6.431)	(12.10)	(7.045)	(5.937)	(9.163)	(6.449)
School SES squared	33.07***	11.14	31.05***	43.32***	42.78***	42.48***
	(5.345)	(10.29)	(5.712)	(4.686)	(11.49)	(5.143)
Constant	311.6***	303.2***	310.7***	322.4***	291.0***	325.4***
	(11.49)	(29.94)	(11.97)	(6.450)	(58.10)	(6.373)
Observations	9194	1873	7321	11394	2104	9290
R-squared	0.427	0.598	0.274	0.470	0.580	0.322

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Other controls: Instructional time, Grade enrolment, Economic disadvantage, Area type, Principal qualifications, Principal experience, Principal experience at current school, Teacher's gender, Teacher qualification, Teacher age, Student age, Student gender, Language of test spoken at home.

Table 4-9 and Table 4-10 report the results of OLS regression models which predict mathematics achievement in Grade 5 and 9 when teachers' absence from school and teachers' late arrival at school are the main variables of interest, respectively. For the Grade 9 data, the association between principal-reported teachers' absence from school and mathematics achievement is negative in all the models, and significant for the full sample and quintile 5, while for Grade 5, the association is not significant in any of the models. This could imply that the significance is driven by the quintile 5 data at the Grade 9 level. The association between principal-reported teachers' late arrival and mathematics achievement is also negative and significant for all models of Grade 9, but insignificant for Grade 5. The results on teachers' late arrival for Grade 9 seems to provide modest support for the finding by Gustafsson (2007) and Taylor and Vinjevold (1999), that teacher late-coming has a marked influence on the reduction of instructional time in schools.

However, it appears that the type of school, in terms of primary or secondary, influences the type of leadership practice required. According to Pont et al. (2008), primary schools tend to be smaller, in comparison to secondary schools, and consequently have different leadership challenges. Principals in small primary schools generally spend more time in the classroom and can closely monitor teachers, hence this could be a reason that the association between teachers' absence and late-coming is not significant for Grade 5.

Table 4-9: Teachers' absence from school

	Grade 5			Grade 9		
	Whole sample	**Quintile 5**	**Quintile 1-4**	**Whole sample**	**Quintile 5**	**Quintile 1-4**
Principal-reported teachers' absence	5.099	9.593	4.890	-11.16**	-14.21**	-9.978**
	(7.934)	8.468)	8.304)	(4.597)	(7.107)	(4.751)
Student SES	3.942***	1.788	2.128	1.713*	15.58	-1.516
	(1.336)	(38.31)	(2.680)	(1.000)	(98.08)	(1.588)
Student SES squared	-2.838**	2.208	-5.458***	-0.933	-3.151	-2.480***
	(1.094)	(13.35)	(1.711)	(0.645)	(40.25)	(0.907)
School SES	64.60***	106.4***	59.13***	75.49***	76.13***	74.20***
	(6.816)	(12.10)	(7.477)	(6.008)	(10.30)	(6.532)
School SES squared	34.11***	8.323	33.00***	44.13***	41.62***	43.27***
	(5.743)	(10.84)	6.307)	(4.635)	(11.88)	5.061)
Constant	327.6***	315.5***	326.9***	334.5***	319.1***	335.3***
	(11.88)	(28.74)	(12.77)	(5.395)	58.53)	5.448)
Observations	9017	1858	7159	11337	2100	9237
R-squared	0.417	0.597	0.259	0.469	0.573	0.321

Table 4-10: Teachers' late arrival at school

	Grade 5			Grade 9		
	Whole sample	**Quintile 5**	**Quintile 1-4**	**Whole sample**	**Quintile 5**	**Quintile 1-4**
Principal-reported teachers' late arrival	-0.135	10.38	-0.268	-11.38**	-15.96**	-10.31**
	(10.33)	(10.63)	(10.58)	(5.123)	7.842)	5.150)
Student SES	3.944***	2.113	2.243	1.626	19.31	-1.742
	(1.336)	(38.06)	(2.632)	(0.998)	(100.5)	(1.594)
Student SES squared	-2.838**	1.940	-5.383***	-0.896	-4.894	-2.501***
	(1.104)	(13.25)	(1.689)	(0.644)	(41.40)	(0.906)
School SES	64.02***	107.3***	58.51***	75.05***	74.69***	73.41***
	(6.855)	12.59)	7.467)	(6.065)	(10.17)	(6.714)
School SES squared	34.32***	8.023	33.20***	44.15***	43.94***	42.99***
	(5.708)	(10.93)	(6.244)	(4.669)	11.73)	5.203)
Constant	328.2***	315.8***	327.5***	332.0***	314.1***	332.9***
	(11.77)	(28.77)	(12.61)	(5.263)	(59.83)	(5.322)
Observations	9017	1858	7159	11394	2104	9290
R-squared	0.416	0.597	0.258	0.468	0.573	0.320

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Other controls: Instructional time, Grade enrolment, Economic disadvantage, Area type, Principal qualifications, Principal experience, Principal experience at current school, Teacher's gender, Teacher qualification, Teacher age, Student age, Student gender, Language of test spoken at home.

Table 4-11 reports the results of the association between the frequency of homework exercises as reported by teachers, used as a proxy for monitoring of assessment by the school principal, and mathematics achievement. Similar to teachers' absence from school and late arrival at school, it appears that for the frequency of homework exercises given to students, the type of school (primary or secondary) also has an influence on students' academic achievement. Principals in small primary schools generally spend more time in the classroom and can closely monitor teachers, which may be a reason that the association between the frequency of homework exercises and mathematics achievement is positive and significant for Grade 5. In secondary schools, monitoring of teachers is not done directly by the school principal, hence the association between the frequency of homework exercises and mathematics achievement is not significant.

Table 4-12 reports the results of the association between teachers' satisfaction with the teaching profession, used as a proxy for teacher motivation, and mathematics achievement. When it comes to satisfaction with being a teacher, in secondary schools, there appears to be a positive and significant association with mathematics achievement. This could imply that to achieve better performance in secondary schools, teachers should be highly motivated. Teacher motivation is also important for primary school teachers, but other instructional leadership characteristics, such as monitoring of curricular implementation, appear to play a dominant role.

Table 4-11: Monitoring of curriculum

	Grade 5			Grade 9		
	Whole sample	**Quintile 5**	**Quintile 1-4**	**Whole sample**	**Quintile 5**	**Quintile 1-4**
Mathematics homework frequency – everyday or 3-4 times a week	15.06***	17.32**	13.94***	6.530	2.939	6.849
	(2.879)	(6.827)	(2.984)	(4.843)	(7.869)	(4.879)
Student SES	4.276***	-27.40	2.799	1.748*	19.81	-1.964
	(1.352)	(45.87)	(2.745)	(1.008)	(100.6)	(1.639)
Student SES squared	-2.218**	13.72	-4.592**	-0.779	-4.593	-2.532***
	(1.122)	(15.55)	(1.841)	(0.651)	(41.46)	(0.931)
School SES	62.06***	102.3***	58.16***	75.60***	77.01***	73.77***
	(6.476)	(12.50)	(7.173)	(6.290)	(10.68)	(6.993)
School SES squared	31.00***	3.957	31.14***	44.16***	42.75***	42.80***
	(5.527)	(11.29)	(6.277)	(4.683)	(11.92)	(5.242)
Constant	321.5***	330.0***	321.0***	325.3***	310.9***	325.7***
	(11.74)	(34.58)	(12.62)	(6.242)	(60.12)	(6.286)
Observations	7914	1622	6292	11098	2066	9032
R-squared	0.430	0.601	0.272	0.470	0.571	0.321

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Other controls: Instructional time, Grade enrolment, Economic disadvantage, Area type, Principal qualifications, Principal experience, Principal experience at current school, Teacher's gender, Teacher qualification, Teacher age, Student age, Student gender, Language of test spoken at home.

Table 4-12: Teacher motivation

	Grade 5			Grade 9		
	Whole sample	**Quintile 5**	**Quintile 1-4**	**Whole sample**	**Quintile 5**	**Quintile 1-4**
Satisfied with being a teacher	4.484	-0.273	8.384	9.507**	14.19**	8.493*
	(10.36)	(13.15)	(10.49)	(4.517)	(6.260)	(4.603)
Student SES	3.981***	-0.179	2.394	1.738*	18.87	-1.960
	(1.324)	(38.26)	(2.628)	(1.003)	(102.3)	(1.592)
Student SES squared	-2.651**	2.887	-5.066**	-0.897	-4.470	-2.644***
	(1.082)	(13.31)	(1.675)	(0.647)	(42.14)	(0.905)
School SES	63.73***	105.2***	58.21***	74.97***	76.16***	73.38***
	(6.530)	(12.14)	(7.181)	(6.102)	(10.33)	(6.870)
School SES squared	34.26***	8.994	33.80***	43.46***	42.69***	42.42***
	(5.701)	(10.63)	(6.374)	(4.582)	(11.52)	(5.265)
Constant	323.1***	318.5***	318.4***	322.6***	302.4***	324.5***
	(14.05)	(30.79)	(14.70)	(6.353)	(60.77)	(6.359)
Observations	9070	1862	7208	11208	2046	9162
R-squared	0.419	0.595	0.262	0.466	0.575	0.316

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Other controls: Instructional time, Grade enrolment, Economic disadvantage, Area type, Principal qualifications, Principal experience, Principal experience at current school, Teacher's gender, Teacher qualification, Teacher age, Student age, Student gender, Language of test spoken at home.

4.6 CONCLUSION

This paper provided a qualitative account of instructional leadership in South African schools, and a quantitative analysis of the association between instructional leadership and student achievement, using the TIMSS 2015 dataset. The interviewing of primary school principals and foundation phase teachers was undertaken regarding their perceptions and practices of instructional leadership in their schools. In the qualitative portion of the study, the main themes identified during these interviews were presented. In the quantitative portion, descriptive and linear probability regression analysis were conducted on the impact of instructional leadership variables on student achievement in South Africa.

4.6.1 Qualitative analysis

Findings from the interviews highlighted disparities in instructional leadership practices relative to the socioeconomic status of the schools. For instance, most former Model C schools provided teacher replacements when teachers were on leave, while schools in the townships and rural areas did not have the same provision. When schools do not provide teacher replacements, or ensure that teachers with free periods stand in for absent teachers, the teaching and learning programme of the school is compromised. This points to weak instructional leadership on the part of school management. Most of the schools interviewed mentioned the disrupting effect of union activity and lateness on the teaching and learning ethos in their schools. The perception was predominantly expressed in township and rural schools, with some principals expressing a sense of powerlessness regarding the issue.

On the issue of the disruption caused by union activity and lateness it looks like the "long route" to accountability is not working effectively. Some school principals are of the view that they can do nothing to discourage lateness or prevent teachers from leaving to attend union meetings, but evidence show that they can. To address the problem of teacher ill-discipline the "long route" to accountability should be enhanced through better management by school principals in ensuring that punctuality and time management are firm principles of the schools. This is in line with the recommendation found in the NEEDU 2013 Report (NEEDU, 2013).

Critically, for curriculum implementation, there appeared to be elements of weak instructional leadership. Curriculum monitoring was conducted largely for compliance purposes, without real regard of quality control. Some school principals were not directly involved in supervision of curriculum implementation. The function was usually left solely to the responsibility of the HODs. However, the quantitative TIMSS 2015 analysis showed that monitoring of curriculum implementation had a significant association with academic performance at primary school level,

due to the small size of most primary schools. In a small primary school, the principal is also a class teacher and his or her oversight role is direct, rather than indirect. This is indicative of the potentially important role school principals can play, in terms of improving student achievement through real curriculum monitoring.

Regarding teacher vacancies, most historically disadvantaged schools only relied on the department for employing teachers. Unlike the former Model C schools, they did not use the SGB funds to fill in vacancies while waiting for permanent appointments by the department. This issue requires further investigation to establish the bottlenecks regarding filling of vacant posts in historically disadvantaged schools.

Although the analysis did not make provision for the perceptions and experiences of parents and students, it can be inferred from the respondents' reported experiences that the less informed parents and students are not better able to evaluate performance of their schools. It was mostly school principals and teachers in schools from low socioeconomic backgrounds who reported low implementation of instructional leadership, and it is assumed that there is presence of more severe information asymmetries between schools and parents in such communities than in more affluent communities. This also implies that there are problems in the monitoring of service delivery in poorer schools which compromise the quality of education.

An effective path for policy could be to empower SGBs and parents to create a culture of accountability by monitoring the performance of the schools.

4.6.2 Quantitative analysis

The results of the multivariate analysis from the TIMSS 2015 dataset showed that SES remains the most important correlate of student achievement in South Africa. The models presented indicated that the mean SES within a school was more important for learning than a student's own home background. This could mean that while student SES plays a screening role in determining the quality of schools that students attend, once students have been selected into schools, the role of individual student SES is overshadowed by the school's average SES. The school then becomes the main predictor of student achievement.

The instructional leadership variables, such as teachers' understanding of curricular goals and teachers' degree of success in implementing curricular goals, were also important correlates of student achievement. However, there seems to be a difference in significance levels depending on whether the questions were answered by principals or teachers. For instance, the association between teachers' understanding of curricular goals was significant when reported by principals at Grade 9 level, whereas it was significant when reported by teachers at Grade 5 level. It is also

pointed out that the instructional leadership's influence on student achievement were expressed in other related variables. For instance, the level of qualification of the principal was an important correlate of student achievement. It is expected that principals with higher qualifications possess better instructional leadership skills, and this should translate into higher student achievement. Similarly, higher teacher qualifications, with a bachelor's degree or honours, were strong predictors of student achievement. This could be interpreted to imply that highly qualified teachers have a greater understanding of, and ability to, implement the curricular goals and mission of the schools.

CHAPTER 5: CONCLUSION

The overarching objective of this dissertation was to investigate the principal-agent problem and accountability in health and education, with a focus on primary healthcare and basic education, in South Africa. This chapter begins by summarising each chapter's main findings and contributions to the literature on the accountability and principal-agent problems in the delivery of health and education. The findings are then interpreted, with the aid of the conceptual framework described in Chapter 1. The chapter concludes with a discussion of the limitations of the dissertation, research gaps which remain, and recommendations for future research.

5.1 SUMMARY OF MAIN FINDINGS

A few conclusions can be drawn regarding the principal-agent problem and accountability in the delivery of health and education services in South Africa, based on the research presented in this dissertation. The importance of accountability in service provision cannot be overemphasised, especially in a developing country such as South Africa, where many citizens live in poverty and most are dependent on service delivery by the state in health, education and various other areas.

Chapter 2 examined the association between patient satisfaction and clinical quality of healthcare and what such correlation, or lack thereof, suggests about patients' ability to read signals about the quality of providers' care. It was assessed whether patient satisfaction responds to the three sets of clinical quality measures: history-taking clinical quality measures, health education quality measures, and medical examination procedures that are likely to improve the quality of healthcare. These clinical quality measures account for many consultations that occur in public PHC facilities for contraception, hypertension and tuberculosis. For some of these clinical quality measures, evidence was found which suggests they are strongly associated with higher patient satisfaction. This finding is aligned with existing evidence that patient satisfaction is associated with higher provider knowledge or effort in Paraguay (Das and Sohnesen, 2006) and Nigeria (Evans and Welander Tärneberg, 2018). In both studies, higher provider knowledge and diagnostic accuracy have a positive influence on the quality of healthcare, along with being significantly associated with higher patient satisfaction.

From the results, it is clear that RPs are potentially able to read signals about the quality of providers' care and reflect this in their visit satisfaction scores, as there was a positive and significant correlation between satisfaction and some of the clinical quality variables. The ability to read and rate quality implies that patients can potentially hold providers accountable for poor

service delivery as they are able to distinguish between high and low quality of healthcare. The results indicate that RPs can discern and report on clinical quality through satisfaction measures. This finding also holds true after controlling for age, education and socioeconomic status. This implies that patient satisfaction can serve as a signal of clinical quality and, therefore, has policy relevance, despite its shortcomings as a quality measure. The fact that RPs can evaluate clinical quality presents an opportunity to hold healthcare providers accountable and health policymakers should take note of this while doing more to manage the shortcomings of patient satisfaction measures.

Chapter 3 examined whether the non-clinical dimensions of care appear more or less important to activated patients, compared to real (non-activated) patients. The study utilised data from SPs and RPs to assess the correlation between non-clinical quality measures and patient satisfaction with overall care at primary healthcare (PHC) facilities in two metropolitan districts of South Africa. This is a very critical area in terms of low citizen expectations and empowerment. Findings show that more positive interactions with the non-clinical factors were significantly associated with an overall higher satisfactory experience with the health services for both the SPs and RPs. Similarly, it was found that among SPs the more non-clinical dimensions of healthcare were strongly related to patient satisfaction with overall care, while fewer of these dimensions were significant among RPs. This suggests empowering citizens with health information and education is vital in raising their expectations of healthcare provision. Activated patients are therefore potentially crucial in narrowing information asymmetries found in the healthcare industry.

Chapter 4 explored the experiences and perceptions of school principals and teachers on how instructional leadership is practised in their schools and how it is associated with academic performance in these schools. It should be noted that, unlike in Chapters 2 and 3, the respondents in this study were frontline providers, that is, school principals and teachers. In the accountability chain, the former are proxy principals and the latter are agents that carry the mandate of politicians and policymakers in providing educational service to the citizens, the ultimate principals, through their participation in the political system. Findings confirm that instructional leadership was not practised in most schools, since many school principals and teachers indicated that curriculum delivery monitoring was not conducted as expected. Moreover, there was failure on the part of the school principals to manage instructional time. Instructional leadership variables appear as important correlates of student performance, though significance varies depending on the level of schooling and whether the questions were answered by school principals or teachers.

5.2 IMPLICATIONS OF THE FINDINGS

The findings of this dissertation identify important implications for the design of bottom-up monitoring and social accountability policies. Such policies may be in the form of participatory engagement of the community, including explicitly delegating some authority over monitoring activities to community structures.

5.2.1 Demand-side approaches to increase accountability

Many of the findings presented in this dissertation relate to the demand-side literature which emerged in the aftermath of the 2004 WDR (World Bank, 2003). The 2004 WDR report captured the demand-side language of empowerment, expression and accountability via its three-central service provision relationship model of user-provider-planner (Standing, 2004). The model propagated for empowered citizens or consumers (principals) to use their voice by holding service providers or policymakers (agents) accountable for the delivery of competent, responsive services (Standing, 2004). The drawback with regard to the supply of public services emanated from the broken lines of accountability at several points along the public policymaking, implementation and monitoring chain of delivery (World Bank, 2003). According to Acosta et al. (2013: 5), it was assumed that the emergence of representative democracy in developing countries will introduce tools and opportunities to hold governments accountable and enhance "faster, higher quality or better response to the demands of citizens". Theoretically, in a democratic dispensation, 'real' principals (citizens) can hold their agents (politicians and policymakers) to account through elections, referendums, impeachment procedures and public demonstrations (Acosta et al., 2013). However, due to the existence of multiple principals, these tools became blunt as an agent "has to respond to the expectations, needs and demands of competing principals" (Acosta et al., 2013: 6). According to Carey (2009), an agent (Member of Parliament) may be responsive to her real principals, citizens who voted for her into office, but her career in politics may be subject to the goodwill of the party leader who leads government.

(a) Problem of information asymmetries between agents and principals

The results of this study in Chapter 2 and 3 demonstrate that principals (patients) have the potential to hold agents (providers) to account through their ability to discern quality in healthcare provision, thereby repairing the broken lines of accountability in monitoring the chain of delivery. Chapter 2 highlights that SPs are better able to evaluate the clinical quality of healthcare that is provided to them, in contrast to RPs. While in Chapter 3, it is found that activated or empowered patients continue to attach greater value to the non-clinical dimensions of care than non-activated patients. In particular, the activated patients placed more value on those non-clinical dimensions that are

closely related to clinical quality, such as confidentiality and effective communication. Chapters 2 and 3 data indicate that the "short route" to accountability can be used to monitor the delivery of quality care. Contrary to the widely held assumption that patients are ignorant with regard to quality of care, evidence reveals that they can discern quality. Moreover, empowering patients with knowledge about healthcare performance is crucial in enhancing the "short route" to accountability and the evidence from the informed vs. uninformed patients, show that informed patients have greater ability to discern quality and potentially also then act on low quality. Chapters 2 and 3 did not examine whether the "long route" to accountability is working, or whether it provides a better alternative to the "short route".

Chapter 4 reveals that the school principals do not implement instructional leadership as expected, opening up the delegation chain running from the principal to the agent to accountability gaps. School principals' inability to enforce teacher punctuality has been found in other earlier studies (Eddy-Spicer, Ehren, Bangpan, Khatwa, and Perrone, 2016) in which registers of teachers' attendance were not monitored and the national government did not punish teachers who miss several school days. Some principal's indifference to teacher attendance of union activities during school hours might be attributed to the parallel system of governance and accountability (Ehren, Paterson, and Baxter, 2020) where principals often face intimidation from the powerful teacher union, SADTU. According to Ehren et al. (2020) this parallel structure of accountability allows unionised teachers the ability to prevent vertical accountability (a principal-agent relationship in a school setting where the principal holds the teachers (agents) to account). Moreover, another complication is that teachers in public schools are deployed by the provincial administration, leaving principals without formal authority on recruitment decisions (Ehren et al., 2020: 201).

Although the analysis in Chapter 4 did not make provision for the clients' (parents' and students') perceptions and experiences, as seen in the two earlier chapters, it can be inferred from the proxy principals' and agents' reported experiences that the less informed ultimate principals (parents and students) are not better able to evaluate performance of their schools. It was mostly school principals and teachers, in schools from low socioeconomic backgrounds, who reported low implementation of instructional leadership. As such the presence of larger information asymmetries is assumed between schools and parents in such communities, as opposed to more affluent communities. This also implies problems within the monitoring of service delivery in poorer schools which compromises the quality of education. In both PHC and basic education, there are governance structures, such as Clinic Councils[38] (CCs) (Clayton, 2014) and School

[38] The phrase Clinic Council (CCs) is used in this dissertation but it also refers to Community Health Centre Committees (CHCCs).

Governing Bodies (SGBs) (Graaff, 2016) that were put in place after 1994 as methods to accomplish community participation and good governance, of both the health and education systems. However, these community participation bodies may be prone to dysfunctions and failures, which are discussed below.

(b) Assumptions along the accountability chain

According to Ringold et al. (2012:12), there are several assumptions that are embedded in the short and long routes of accountability as related to governance structures, namely: (1) The WDR framework assumes that citizens have incentives and are able to retrieve and handle information with regard to service provision, (2) People are prepared and able to utilise information and remedy channels to put pressure on policymakers and providers, and lastly (3) Policymakers and providers will be responsive to citizen influence.

(c) Constraints to effective functioning of social accountability measures

However, there are several constraints that undermine the effective functioning of the social accountability governance structures in South Africa's PHC facilities and schools. Firstly, both health and education are characterised by asymmetric information that hamper the extent to which citizens can challenge policymakers and providers (Ringold et al., 2012). Clayton (2014) highlights low levels of literacy and inadequate training among clinic council members in most of the South African health districts. Secondly, poor citizens in particular may not have time to participate in local governance due to more pressing needs, such as looking for food (Banerjee and Mullainathan, 2008). Graaf (2016) makes a similar observation when pointing out the great sacrifice of time and money made by employed parent members of SGBs when participating in their children's schools. It is noted that the issue of time and money becomes complicated when the parents are not employed. Thirdly, when the intervention comes to an end, there is a tendency for mobilisation efforts to dissipate (Ringold et al., 2012). In Kenya, students' test scores improved after parents were trained to monitor performance of contract teachers by holding performance reviews (Duflo et al., 2015). However, the improved academic success disappeared subsequent to the end of the contract teacher programme, suggesting a lack of sustainability in monitoring activities by parents.

According to Nyqvist et al. (2017), the provision of information to the ultimate principals is critical for effectiveness of social accountability interventions. The authors provide evidence of significant improvement in healthcare delivery after conducting an experiment which monitors the long run impact of a community-driven project in PHC provision in Uganda. The experiment consisted of treatment, in which there was both community participation and provision of information through dissemination of report cards on performance of healthcare providers, and control, in which there

was community participation without information provided. Significant improvement was noted in the participation intervention in which information was provided to the principals.

(d) Why the provision of information is critical to social accountability interventions

From the experiment, it was clear that the interaction between the community members and health provider in the control group identified issues that needed support from upper echelons of the accountability chain, while in the intervention group the participants focused on local problems (for example, absenteeism, opening hours, waiting time and patient-clinician interactions) that could be addressed by health workers and clients (Nyqvist et al., 2017). This is consistent with the hypothesis that citizens are able to hold providers to account when they are empowered with information on the performance of providers.

An evaluation of two community-based studies monitoring teacher performance in Uganda revealed that the intervention, that included tools for assembling performance, resulted in a decline in teacher absenteeism and increased academic performance (Barr, Mugisha, Serneels, and Zeitlin, 2012). A more recent evaluation study in Angola found positive effects of the full scorecard on school management outcomes and teachers' performance, with average impacts on student achievement and absenteeism (Di Maro, Leeffers, Serra, and Vicente, 2020). The fact that there were average results on test scores and absenteeism seems to support Fox (2015)'s assertion that pathways of translating problems into practical solutions are often long and difficult. Fox (2015) maintains that even "high impact" solutions to problems may lead to incomplete impacts under different conditions. Based on the inference that less informed principals (parents and students) were not better able to evaluate performance of their schools (Chapter 4), these evaluations indicate that when information is provided to parents about school outcomes and teachers' performance, education quality can improve.

Although the provision of information is important for social accountability, policy makers should however guard against "capture" of social accountability structures by local elites. Elite capture involves the use of delegated powers by local community members to further their own objectives, sometimes at the expense of those that are less well-off (Bardhan and Mookherjee, 2000). In the South African landscape this occurred when members of some teacher unions reportedly sold educator posts in collusion with SGBs (Department of Basic Education, 2016). In the South African context, where poverty is prevalent in the majority of communities, there is a potential that the aims and objectives of clinic councils and SGBs can be misdirected for narrow selfish objectives of local elites.

5.2.2 Implications based on conceptual framework

In the context of public health and education, the relationship between the provider and the client is most often depicted as a multi principal-agent relationship. In this relationship the secondary principal, politician or policymaker, appoints an agent, healthcare provider or school, to render healthcare or education services on the primary principal's (patient, student, and parent) behalf. The principal-agent problem stems from the situation in which the provider chooses instead to maximise his or her own interests at the expense of those of the client. The finding that monitoring of curriculum delivery was not conducted as expected in Chapter 4 indicates that the proxy principals (school managers) were not acting in the interest of their ultimate (parents, students and the Department of Education). This interfered with accountability, in the sense that teachers' performance was not being optimally managed, and this potentially impacted on the performance of their students. Since the parents and the Minister of Basic Education are less informed about the day-to-day operational running of schools, they might not be able to detect any anomaly in the delivery of the curriculum

In Chapter 2, RPs were able to discern the quality of care they received from healthcare providers. Healthcare is characterised by a high degree of uncertainty (Arrow, 1963) and inequality of information between healthcare providers and their patients. The provider has expertise to prescribe the appropriate treatment for the patient's health condition, while the patient does not have this knowledge. The fact that some RPs were able to distinguish between high- and low-quality healthcare implies they are able to bypass low-quality facilities for high-quality ones, thereby potentially holding providers to account for poor quality. Highlighting the benefit of empowered and informed patients about their health conditions and possible treatment options, Nguyen (2011: 55) states that this will allow the healthcare provider to be "… less able to deviate from the role of a perfect agent".

However, as in most interactions, there was no significant correlations between RPs' experience of care and satisfaction, therefore, it can be inferred that most (real) patients could not distinguish between high and low quality of care. This implies that there could be low-quality providers who mimicked high-quality providers, in terms of externally observable characteristics, resulting in patients not being able to differentiate between the two. In health markets, doctors and nurses have an informational edge over patients since they have a better understanding of the system and its undertakings (Salanié, 2005). According to Sekwat (2000), the adverse-selection problem emanates from the principal's failure to accurately judge the agent's competence, abilities and skills. As in any principal-agent relationship, there is always a possibility for the healthcare provider to

overstate her competence, abilities or effort to get hired (Pontes, 1995). Consequently, medical qualifications of doctors and nurses may not serve as a true signal of quality due to informational asymmetry between the providers and patients.

In Chapter 3, it was clear that the more non-clinical dimensions of healthcare were strongly correlated with patient satisfaction among the SPs, in comparison to the RPs. After the SPs were recruited into the study, they received intensive training on how they should undertake the data collection process. The training also involved empowering the SPs about optimal care which should be provided by healthcare workers during patient consultations. According to Leonard and Leonard (2004), the diagnostic effort is an important input in healthcare which suffers from asymmetric information, such that patients are unable to assess the correctness and quality of the practitioner's consultation. Leonard and Leonard (2004) further point out that patients use their health outcomes to evaluate care received from the healthcare practitioner. If the patient is cured, they consider that as good care and if the patient is not cured, they regard that as bad care. However, quality of care may be good even if the patient is not cured and it may be of a lower quality while the patient has been cured (Leonard and Leonard, 2004). In instances when a principal is not able to monitor the extent to which the agent performs the work, the principal might not be able to provide adequate incentives to induce high quality (Leonard and Leonard, 1998). The results of this study indicate that providing patients with information on how clinicians should provide healthcare can empower the principal/patient by reducing the provider-patient asymmetric information. In this way, patients might be able to evaluate diagnostic effort of the provider, thereby theoretically providing incentives for providers to provide higher quality.

In Chapter 4, it was shown that instructional leadership was not practised as expected in most of the schools that were visited. Monitoring of curriculum, in particular, was done simply to comply with the requirements of the Department of Education, and there was little emphasis given to quality of teaching. Similar to Pritchett's "isomorphic mimicry" concept, low-performing public institutions, such as schools, tend to imitate high-performing ones, thereby pretending to be delivering quality services while they do the opposite (Andrews, Pritchett, and Woolcock, 2017) Moreover, several school principals from low socioeconomic backgrounds expressed their failure to manage instructional time due to the disruptive influence of teacher unions. By not paying attention to quality teaching and assessment, and only complying with requirements, teachers can be regarded as displaying goal divergence. Goal divergence manifests when the interests of the agent are not consistent with the principal's expected and anticipated outcomes.

5.3 LIMITATIONS

Limitations associated with this study should be acknowledged. Firstly, the school interview data and patients' data from healthcare facilities were collected in 2015 and 2016 respectively, and therefore, it is possible that the quality in these facilities has changed over time. Secondly, the analysis is restricted to public healthcare facilities and public schools, as such the findings do not have any bearing on the private healthcare facilities and private schools. Thirdly, since the data on specific learners' performance on the sampled schools was not available the study could not relate learners' performance to the school principals' reported instructional leadership. Fourthly, the collected data for both health and education allowed for associational analyses, not causal. Fifthly, only relatively few facilities and schools were sampled, so generalisation cannot be done. In addition, the studies were limited by the time and financial resources available to undertake them. Nevertheless, these studies have contributed to a very important topic in the South African literature, namely accountability in service delivery. The importance of this issue derives from the fact that it is so central in service delivery, and that poor quality of service delivery has such a negative impact on the living standards of South Africa's poor.

5.4 RECOMMENDATIONS FOR FUTURE RESEARCH

This study revealed that opportunities exist for principals to hold their agents to account. Future studies should investigate how information, such as report cards, can be provided to clinic councils and SGBs, for them to be effective in the bottom-up monitoring of PHC facilities and schools. In cases where report cards have been provided but have not generated much community responsiveness, it would be important to investigate barriers to community mobilisation and social accountability. Moreover, future research should investigate how to prevent "capture" of social accountability structures such as clinic councils and SGBs by local elites. Social accountability mechanisms in instances where there is failure in the delivery of public services, have some limitations and at times can be used for other purposes other than service delivery. In the first decade of the 21st century, many parts of South Africa have been characterised by violent community protest actions and the so-called xenophobic attacks, and these protests were mainly led by members of the African National Congress (ANC) that belonged to one political faction or another (Langa et al., 2011). It has been evident that the motivation for these protest actions was not failure of service delivery per se, but the non-provision of services was used as a guise for the battle about the control of local governance among political elites within the governing party and its alliance partners. This is also echoed by Reddy (2016) who noted that municipal service delivery in South Africa has been negatively affected by political infighting. Studies should then investigate

how to have social accountability mechanisms that are independent from the influence of politicians. Such studies should also include private healthcare facilities and private schools for comparability purposes. Furthermore, an investigation is needed on the political economy of accountability in the context of opposition to vertical accountability by powerful interest groups such as teacher unions in schools. Lastly, further efforts (whether research or policy) are required to make clear to policymakers what the limitations of satisfaction ratings collected through surveys are, but also that in certain instances these measures do provide a signal of quality, even if somewhat muted.

5.5 CONCLUSION

The dissertation has direct implications for social accountability mechanisms as instruments to drive service delivery in health and education. The finding that citizens who are highly informed about provider quality can evaluate performance of public services is an important contribution to the demand-responsiveness and accountability literature. The findings also provide an important lesson for policymakers to focus on educating citizens regarding their rights and what can be expected from public providers. The other significant insight from the findings is the ineffectiveness of the "long route" to accountability in schools that emanates primarily from a parallel system of accountability that is attributed to the power of teacher unions. Another critical contribution of this dissertation is the provision of novel data in the form of SP, PEI and in-depth interviews with school principals and teachers to investigate accountability and the principal agent problem in health and education. The contribution lies both in the generation of new data to investigate the principal-agent problem and accountability, and also in the analysis of this data using an accountability framework

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APPENDICES

APPENDIX 1: CHAPTER 2

Appendix 1A: Score Sheets

Tool A1-1: SP Contraception Score Sheet

INSTRUCTIONS TO FIELD WORKERS:

ACCURACY: To ensure accuracy it is recommended that you use your mobile phone to capture times and make notes while you wait on how full the waiting room was. Do not at any time make notes on the actual score sheet at the clinic.

SAFETY: In the unlikely event that a health worker is suspicious and confronts you, please present the letter from ECDOH. Therefore it is vital that you always travel with your letter. There had been almost 40 interactions and no confrontations, but it is important to know what to do in such a case. The first option will be to end the interaction with an excuse and leave, but if this does not work, you will need to present the letter.

PRESCRIBED MEDICINES: Do not collect the medicines, but attach the prescription to the questionnaire. If medicines are dispensed by the nurse, bring them along.

Score Sheet Information:

Name MP	
Facility Visited	
Folder Number	
Date of Visit	

Notes by Supervisor:

Full payment?	Yes ☐ No Bonus ☐ Partly ☐
If No Bonus or Partly, why?	
Other	

Section 1	Question	Number
1.1	How many patients were waiting when you reached the clinic? (approx)	☐
1.2	How many patients were in the clinic when you left? (approx.)	☐

1.3	Time entered facility	:	
1.4	Time exited facility	:	
1.5	Language treated in: isiXhosa ☐	Afrikaans ☐	English ☐

Key summary questions:	**Please answer whether you feel the following questions have been answered**
A – The healthcare worker asked about your medical history (previous births, chronic medication, and gynaecological problems.)?	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
B - The healthcare worker asked you about your family's medical history (for example, heart disease, blood clots, breast cancer, high blood pressure)?	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
C – The healthcare worker asked about your life circumstances (for example, where you live, where and whether you work, transport)	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
D – *A urine pregnancy test was done	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
E – The healthcare work advised that you use dual contraception (use of a male or female condom barrier with your other contraception)	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
F – The healthcare worker explained all (or most) contraception options	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
G – The healthcare worker described the advantages and disadvantage of contraception options	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐
H – All medical terms were clearly explained and clear language was used (you understood everything)	Yes ☐ Somewhat Yes ☐ Unsure ☐ No ☐ Somewhat No ☐

I – The healthcare worker was friendly, open, compassionate and non-judgemental	Yes ☐ No ☐ Somewhat Yes ☐ Somewhat No ☐ Unsure ☐
J – You left the clinic with a clear contraception recommendation (the nurse recommended/suggested one specific contraception option for you)	Yes ☐ No ☐ Somewhat Yes ☐ Somewhat No ☐ Unsure ☐
K – You were given a choice between contraception options	Yes ☐ No ☐ Somewhat Yes ☐ Somewhat No ☐ Unsure ☐
L – An HIV test was offered or done	Yes ☐ No ☐ Somewhat Yes ☐ Somewhat No ☐ Unsure ☐

Section 2: General questions and sexual history		**Asked?**	**Notes**
2.1	Questions about current sexual relations (whether currently sexually active and number of sexual partners)	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.2	Questions about previous sexual relations	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.3	Probe about knowledge of contraception	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.4	Age	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.5	Do you have any children?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.6	Do you plan to have children in the near future?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.7	Probe about possible preference for contraception	Yes ☐ No ☐ NA ☐ Self-given ☐	
*2.8	Encouraged partner to be involved in contraception decisions	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.9	Do you know your HIV status?	Yes ☐ No ☐ NA ☐ Self-given ☐	

2.10	When last did you take an HIV test?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.11	Does your partner know his HIV status?	Yes ☐ No ☐ NA ☐ Self-given ☐	
History (gynaecological)			
2.12	At what age did you begin menstruating?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.13	If you have gone to the gynaecologist before, did he/she find any problems?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.14	What is your bleeding pattern like (regular)?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.15	Probes about menstruation experience (for example, painful, abdominal cramps and/or heavy bleeding).	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.16	Questions about vaginal discharge (strange smell or colour)	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.17	Do you have any lower abdominal pain?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.18	Do you have any sores/ulcers on your genital area?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.19	Do you experience any strange (unusual) uterine bleeding (includes bleeding after sex and between periods)?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.20	Do you think that you might already be pregnant?	Yes ☐ No ☐ NA ☐ Self-given ☐	
Other medical history			
2.21	Have you been diagnosed with any (chronic) disease? (Yes/No)	Yes ☐ No ☐ NA ☐ Self-given ☐	
	More specifically, were you asked about whether you have ever had or currently have any of the following:		

A	Heart disease/stroke	Yes ☐ No ☐ NA ☐ Self-given ☐	
B	Blood clots	Yes ☐ No ☐ NA ☐ Self-given ☐	
C	Diabetes	Yes ☐ No ☐ NA ☐ Self-given ☐	
D	Breast cancer	Yes ☐ No ☐ NA ☐ Self-given ☐	
E	High blood pressure/hypertension	Yes ☐ No ☐ NA ☐ Self-given ☐	
F	Epileptic seizure	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.22	Do you currently have TB?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.23	Are you currently on any medication?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.24	More specifically: are you currently on TB medication?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.25	More specifically: are you currently on ARVs for HIV?	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.26	Do you smoke at all?	Yes ☐ No ☐ NA ☐ Self-given ☐	
Review of symptoms for possible pregnancy			
2.27	*Missed period	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.28	*Swollen breasts	Yes ☐ No ☐ NA ☐ Self-given ☐	
2.29	*Regular nausea	Yes ☐ No ☐ NA ☐ Self-given ☐	

Family history			
2.30	Questions regarding family history:		
A	*Breast cancer	Yes ☐ No ☐ NA ☐ Self-given ☐	
B	*Heart disease	Yes ☐ No ☐ NA ☐ Self-given ☐	

C	*Blood clots	Yes ☐ No ☐ NA ☐ Self-given ☐	
D	*High blood pressure	Yes ☐ No ☐ NA ☐ Self-given ☐	

Section 3	**Physical examination and tests**	**Yes(1) No(2) Offered but not taken (3) N/A(4)**	**Notes**
3.1	Weight	Yes ☐ No ☐ Offered but not taken ☐ NA ☐	
3.2	Blood pressure	Yes ☐ No ☐ Offered but not taken ☐ NA ☐	
3.3	Breast examination	Yes ☐ No ☐ Offered but not taken ☐ NA ☐	
3.4	*Gynaecological exam	Yes ☐ No ☐ Offered but not taken ☐ NA ☐	
3.5	Urine pregnancy test	Yes ☐ No ☐ Offered but not taken ☐ NA ☐	
3.6	HIV test	Yes ☐ No ☐ Offered but not taken ☐ NA ☐	

Section 4	Details about contraception prescribed		
Emergency contraception			**Notes**
4.1	Did the healthcare worker ask you if you had unprotected sex in the past five days?	Yes ☐ No ☐ NA ☐	
4.2	*If yes, did the healthcare worker offer you emergency contraception?	Yes ☐ No ☐ NA ☐	
Choice of contraception			
4.3	Did the healthcare worker describe multiple (more than one) forms of contraception?	Yes ☐ No ☐ NA ☐	
4.4	How many forms of contraception did the healthcare worker describe/mention to you?	Possible options, for example: 1) Implanon/Sub-dermal (below skin) implant 2) Injection/injectable 3) The Pill 4) Loop/intra-uterine device (IUD) 5) *Sterilisation 6) Condoms ☐	
4.5	Did the healthcare worker advise dual contraception (that you use a male or female condom (barrier methods) with another form of contraception to protect from STIs and HIV)?	Yes ☐ No ☐ NA ☐	
4.6.1	Did the healthcare worker give you some condoms	Yes No NA	
4.6.2	If not, did she tell you where you can find condoms at the facility	Yes ☐ No ☐ NA ☐	
4.7.1	Did the healthcare worker advise/recommend one specific type of contraception?	Yes ☐ No ☐ NA ☐	
4.7.2	Were you provided a choice between contraception options?	Yes ☐ No ☐ NA ☐	

4.8	Did the healthcare worker describe the different time periods of effectiveness of different contraception options?	Yes ☐ No ☐ NA ☐	
4.9	What type of contraception did you and the healthcare worker decide on/did the healthcare worker prescribe?		
4.10	Did the healthcare worker discuss:		
4.10.1	Circumstances of lowered effectiveness	Yes ☐ No ☐ NA ☐	
4.10.2	Possible vomiting and diarrhoea	Yes ☐ No ☐ NA ☐	
4.10.3	Side effects	Yes ☐ No ☐ NA ☐	
4.10.4	How the contraception will interact with other medication,	Yes ☐ No ☐ NA ☐	
4.10.5	What to do in case of missed/late contraception use	Yes ☐ No ☐ NA ☐	
4.11	Did the healthcare worker prescribe the pill? If yes, then mark the following options. Did the healthcare worker discuss:	Yes ☐ No ☐ NA ☐	
4.11.1	Information about start week/day	Yes ☐ No ☐ NA ☐	
4.11.2	Information about time to take the pill	Yes ☐ No ☐ NA ☐	
4.11.3	Information about continuing use (not interrupting the pill)	Yes ☐ No ☐ NA ☐	
4.11.4	General information about a forgotten pill	Yes ☐ No ☐ NA ☐	
4.11.5	*Allowance/instructions to contact clinic in case of forgotten pill	Yes ☐ No ☐ NA ☐	
4.11.6	What really is a forgotten pill	Yes ☐ No ☐ NA ☐	

4.12	Did the healthcare worker discuss the availability of emergency contraception to avoid unwanted pregnancies in the future?	Yes ☐ No ☐ NA ☐	
4.13	Did the healthcare worker discuss the availability of termination of pregnancy services to avoid unwanted pregnancies in the future?	Yes ☐ No ☐ NA ☐	
4.14	Did the healthcare worker give you any advice about the number of sexual partners?	Yes ☐ No ☐ NA ☐	

Section 5	**Treatment**						
5.1	Medicines dispensed Enter 1 if yes and 2 if no ☐	Name	Dose	Frequency	Duration	Medicine code	Notes

5.2	Medicines prescribed Enter 1 if yes and 2 if no ☐	Name	Dose	Frequency	Duration	Medicine code	Notes

5.3	Education re: Safe sexual behaviour (encourage patient to	Yes ☐ No ☐ NA ☐	**Notes**

	have 1 partner at a time and if HIV negative to test for HIV between partners)		
5.4	Education re: Contraception adherence (importance of not interrupting contraception, use contraception reliably)	Yes ☐ No ☐ NA☐	
5.5	Education re: Future contraception use (needs may change in the future)	Yes ☐ No ☐ NA☐	

Section 6	**Healthcare worker follow up questions**		**Notes**
6.1	Did the healthcare worker ask you to return? If yes, then mark the following options	Yes ☐ No ☐	
6.2	New appointment for prescription	Yes ☐No ☐ NA ☐	
6.3	New appointment for renewal	Yes ☐No ☐ NA☐	
6.4	New appointment for check-up	Yes ☐No ☐ NA☐	
6.5	After so many days		
6.6	Weeks		

Section 7 Subjective questions related to clinical quality			**Notes**
7.1	Did the healthcare worker adequately explain medical terms?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.2	Did the healthcare worker ask sufficient questions about gynaecological and medical history?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.3	Was an invitation extended to you to ask more questions?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.4	Were your questions adequately answered?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.5	Did you feel like you knew what was going on the entire time during your visit?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.6	Did you feel like the healthcare worker understood your problem (she was empathetic and compassionate, not judgemental towards you)?	Yes ☐ No ☐ Don't Know / Unsure ☐	

7.7	Did you like this healthcare worker?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.8	Regardless, did you feel that the healthcare worker addressed your problem?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.9	Would you go to this healthcare worker again?	Yes ☐ No ☐ Don't Know / Unsure ☐	
7.10	To ascertain whether your problem was solved, on a scale from one to five, how satisfied were you with the care you received (whole clinic experience)?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	

Section 8 Global assessment scale			**Notes**
8.1	How satisfied/comfortable were you with the environment which the healthcare worker created for you to convey your symptoms?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	

8.2	How satisfied were you with the knowledge the healthcare worker had regarding your query?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
8.3	Did the healthcare worker address your concern seriously? How satisfied are you with how seriously he/she addressed your concerns?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
8.4	How satisfied are you with how well the healthcare worker explained contraception and its various aspects to you?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
8.5	How satisfied are you with the way that healthcare worker explained your future contraception plan (how to use/when to return) to you?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	

Section 9	**Non-clinical quality**		**Notes**
9.1	How long did you sit in the waiting area before seeing the healthcare worker?	:	
9.2	How long were you with the healthcare worker/ process time excluding creating a file and clerical tasks?	:	
9.3	How long did it take to create a file and other clerical tasks?	:	
9.4	How satisfied were you with the way the staff greeted and welcomed you at the facility?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
9.5	How satisfied were you with the cleanliness/hygiene of the facility?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	

9.6	How satisfied were you with the level of privacy in the counselling and testing rooms?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
9.7	How satisfied were you with the general attitude of the staff towards you?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
9.8	How satisfied were you with the way your contraception options were explained to you?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
9.9	How satisfied were you with the level of confidentiality with which your medical records were handled?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	

9.10	Do you think that the healthcare worker seeing you will discuss anything about your visit with others?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
9.11	Would you go to this facility again?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat dissatisfied ☐ Very Dissatisfied ☐	
9.12	Would you recommend a family member or neighbour to the facility?	Very satisfied ☐ Somewhat Satisfied ☐ Neutral ☐ Somewhat Dissatisfied ☐ Very Dissatisfied ☐	

Section 10: Number of nurses interacted with in each section/division:

General reception	File opening	Intake nurse	Family planning	Any other

Section 11: Any general comments/notes:

Tool A1-2: SP Hypertension Score Sheet

INSTRUCTIONS TO FIELD WORKERS:

ACCURACY: To ensure accuracy it is recommended that you use your mobile phone to capture times and make notes while you wait on how full the waiting room was. Do not at any time make notes on the actual score sheet at the clinic.

SAFETY: In the unlikely event that a health worker is suspicious and confronts you, please present the letter from WCDOH. Therefore it is vital that you always travel with your letter. There had been almost 40 interactions and no confrontations, but it is important to know what to do in such a case. The first option will be to end the interaction with an excuse and leave, but if this does not work you will need to present the letter.

ASSESSING TESTS: Nurses may not always tell you what tests they are doing. You should know when it is a blood pressure tests because this is different and you have all had blood pressure tests. Sugar tests and cholesterol tests are likely to look the same, with blood prick and then the blood is entered into an electronic rapid testing device. So in this case you may need to ask what the nurse is testing. A kidney function tests will involve blood drawn from the arm and then the sample will be sent to the lab. However, in all of the cases where blood is drawn it could also be that nurses are doing other tests so it would be important to confirm with them.

PRESCRIBED MEDICINES: Do not collect the medicines, but attach the prescription to the questionnaire. If medicines are dispensed by the nurse, bring them along.

Name of fieldworker			
Name of facility		**Date**	
Section 1	**General questions**	**Number**	
1.1	How many patients were waiting when you reached the clinic?	☐☐	
1.2	How many patients were in the clinic when you left?	☐☐	
1.3	Time entered facility	Hh:mm ☐☐	
1.4	Time exited facility	Hh:mm ☐☐	
1.5	Language treated in: Xhosa ☐	Afrikaans ☐	English ☐
1.6	Did you have any caffeine drink (coffee, soda) 30 minutes before the clinic visit?		
	Did you feel anxious or stressed during the visit?		
	Blood pressure measured during consult	☐	

Key summary questions:	**Please answer whether you feel the following questions have been answered on a scale of one to five:** **1 - Definitely yes– 2 Somewhat yes – 3 - Unsure 4 – Somewhat no 5 – Definitely no – 6 Not Applicable**
A – The healthcare worker offered you a blood pressure test?	
B –The healthcare worker offered you a Urine Dipstick	

C – The health worker weighed you and measured your height?	
C1 – The health worker measured your waist (circumference)?	
D1 – The healthcare worker asked about your medical history?	
D2 –The healthcare worker asked about your family's medical history regarding high blood pressure, heart attacks and strokes?	
E – The health worker asked about your smoking?	
F – The healthcare worker advised you on lifestyle changes	Diet ☐ Smoking ☐ Exercise ☐ Alcohol ☐
G – The healthcare worker was friendly, open, compassionate and non-judgemental	

No.	**Question**	**Asked?** **Yes (1)** **or No (2)** **Unsure (3)** **N/A (4)**	**If not asked:** **Given by SP** **Yes (1)** **or No (2)**	**Notes**
Section 2: MEDICAL HISTORY				
2.1	Age			
2.2	Have you measured your blood pressure previously?			
2.3	What was your last known blood pressure measurement?			

2.4	Have you had treatment for high blood pressure before?			
2.5	Chest pain?			
2.6	Do you sleep well?			
2.7	Headache?			
2.8	Do you have diabetes?			
2.9	Do you have leg pain?			
2.10	Do you suffer from blurry vision?			
2.11	Do you have any allergies?			
2.12	Are you pregnant?			
2.13	Do you take painkillers such as aspirin, ibuprofen and napoxen?			
2.14	Do you take drugs with estrogens or steroids?			
2.15	How often do you exercise or are you physically active?			
2.16	What do you eat? (salt/fat)			
2.17	Do you smoke and if so, how often?			
2.18	Do you drink and if so, how often?			
2.19	Are you taking any recreational drugs such as TIK or cocaine?			
	SUB TOTAL			
SOCIAL HISTORY AND FAMILY				
2.17	Does anyone in your family have high blood pressure?			

2.18	Have anyone in your family had a heart attack?			
		Notes		
PHYSICAL EXAMINATION		**1 if asked by nurse, 0 if not**	**1 if nurse tells you what she is testing without you asking, 0 if not**	**1 if nurse explains to you what the test outcome is and explains it without you asking, 0 if not**
2.19	Blood pressure			
2.19a	Did the nurse support the arm when she measured the blood pressure?		N/A	N/A
2.20	Height measurement			
2.21	Weight measurement			
2.22	Waist measurement			
	SUB TOTAL			
Section 3: TESTS				
3.1	Cholesterol tests			
3.2	eGFR/Kidney functioning			
3.3	Diabetes test			
3.4	Urine dipstick			
	SUB TOTAL			
Section 4: TREATMENT				
4.1	Medicines dispensed?			
	If yes, details:			
	Name:	Dose:	Duration:	
	Name:	Dose:	Duration:	

	Name:	Dose	Duration:	
4.2	Medicines prescribed?			
	If yes, details:			
	Name:	Dose:	Duration:	
	Name:	Dose:	Duration:	
	Name:	Dose:	Duration:	
	When they prescribed or dispensed these medicine(s) did the health worker provide any warnings or instructions?			
	What warning or instructions did the health worker provide?			
4.3	Counselling on healthy eating			
4.4	Counselling on physical activity			
4.5	Counselling on moderate alcohol intake			
4.6	Counselling on weight control			
4.7	Counselling on stress management			
4.8	Counselling on risks of smoking			
4.9	Counselling on dangers of high blood pressure, explaining that you uncontrolled blood pressure can be lethal (associated with heart attack, stroke and kidney disease)			
4.10	Avoiding contraceptive pills with estrogen			
4.11	Avoiding painkillers like Ibuprofen, and aspirin			

	SUB TOTAL		
Section 5: DIAGNOSIS			
5.1	Did the healthcare worker tell you what they think is the problem with your health?		
5.2	If yes, what was it?		
	SUB TOTAL		
Section 6: FOLLOW UP QUESTIONS			
6.1	Did the healthcare worker ask you to return to get a third blood pressure test?		
6.2	Did the health worker explain that it is important to recheck your blood pressure every three months?		
	SUB TOTAL		
Section 7: FEES			
7.1	Fee charged by healthcare worker	R.	
7.2	Cost of medicines paid in addition	R.	
7.3	**TOTAL FEE**	**R.**	

Section 8	**Subjective questions related to clinical quality** **(Please circle the right answer)**		**Comments**
8.1	Did the health worker discuss how you can control your high blood pressure?	Yes=1 No=2 Don't know/Unsure=3	

8.2	Did the healthcare worker adequately explain medical terms?	Yes=1 No=2 Don't know/Unsure=3 NA= 4	
8.3	Did the healthcare worker ask sufficient questions about medical history?	Yes=1 No=2 Don't know/Unsure=3	
8.4	Was an invitation extended to you to ask more questions?	Yes=1 No=2 Don't know/Unsure=3	
8.5	Were your questions adequately answered?	Yes=1 No=2 Don't know/Unsure=3 NA=4	
8.6	Did you feel like you knew what was going on the entire time during your visit?	Yes=1 No=2 Don't know/Unsure=3	
8.7	Did you feel like the healthcare worker understood your problem (she was empathetic towards you)?	Yes=1 No=2 Don't know/Unsure=3	
8.8	Did you like this healthcare worker?	Yes=1 No=2 Don't know/Unsure=3	

8.9	Regardless, did you feel that the healthcare worker addressed your problem?	Yes=1 No=2 Don't know/Unsure=3	
8.10	Would you go to this healthcare worker again?	Yes=1 No=2 Don't know/Unsure=3	
8.11	How satisfied were you with the care you received?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5	

Section 9	Global assessment scale (Please circle the right answer)	
9.1	How satisfied/comfortable were you with the environment which the healthcare worker created for you to convey your symptoms?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
9.2	How satisfied were you with the knowledge the healthcare worker had regarding your query?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
9.3	Did the healthcare worker address your concern seriously? How satisfied are you	Very satisfied =1 Somewhat satisfied =2

	with how seriously he/she addressed your concerns?	Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
9.4	How satisfied are you with how well the healthcare worker explained hypertension and its various aspects to you?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5

Section 10	**Non-clinical quality**	
10.1	How long did you sit in the waiting area before seeing the healthcare worker?	☐☐ H ☐☐ H ☐☐ M M
10.2	How long were you with the healthcare worker/ process time excluding creating a file and clerical tasks?	☐☐ H ☐☐ H ☐☐ M
10.3	How long did it take to create a file and other clerical tasks?	☐☐ H ☐☐ H ☐☐ M
10.4	How satisfied were you with the way the staff greeted and welcomed you at the facility?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
10.5	How satisfied were you with the cleanliness/hygiene of the facility?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
10.6	How satisfied were you with the level of privacy in the counseling and testing rooms?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
10.7	How satisfied were you with the general attitude of the staff towards you?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3

		Somewhat dissatisfied = 4 Very dissatisfied =5
10.8	How satisfied were you with the way she explained the meaning of your blood pressure reading to you?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
10.9	How satisfied were you with the level of confidentiality with which your medical records were handled?	Very satisfied =1 Somewhat satisfied =2 Neutral = 3 Somewhat dissatisfied = 4 Very dissatisfied =5
10.10	Do you think that the healthcare worker seeing you will discuss anything about your visit with others?	Yes=1 No=2 Don't know/Unsure=3
10.11	Would you go to this facility again?	Yes=1 No=2 Don't know/Unsure=3
10.12	Would you recommend a family member or a neighbour to the facility?	Yes=1 No=2 Don't know/Unsure=3
10.13	Why would you or would you not recommend this facility to a family member or a neighbour?	

10.14	General comments about your experience at the facility:

Tool A1-3: SP TB Score Sheet

INSTRUCTIONS TO FIELD WORKERS:

ACCURACY: To ensure accuracy is recommended that you use your mobile phone to capture times and make notes while you wait on how full the waiting room was. Do not at any time make notes on the actual score sheet at the clinic.

SAFETY: In the unlikely event that a health worker is suspicious and confronts you, please present the letter from WCDOH. It is vital that you always travel with your letter. There had been almost 40 interactions and no confrontations, but it is important to know what to do in such a case. The first option would be to end the interaction with an excuse and leave, but if this does not work you will need to present the letter.

BASIC INFECTION CONTROL MEASURES: If you find yourself in a clinic where there are no open windows and no adequate ventilation, try to walk outside for 10 minutes after every hour. You may need to ask someone to keep your place in the queue for you. Masks are also freely available at all provincial facilities. Make use of one if you feel the need to.

ASSESSING TESTS: Nurses may not always tell you what tests they are doing. However, after the role-play you should know when your temperature, blood pressure, pulse rate, height and weight are being taken. You have also been shown what chest percussions, chest auscultations and feeling for lymph nodes look like, in case this is also performed.

PRESCRIBED MEDICINES: If any medicines are prescribed, do not collect it. Rather attach the prescription to the questionnaire. If medicines are dispensed by the nurse, bring them along.

Name of fieldworker			
Name of facility		**Date**	
Section 1	**General questions**	**Number**	
1.1	How many patients were waiting when you reached the clinic?	☐☐	

1.2	How many patients were in the clinic when you left?	☐☐	
1.3	Time entered facility	hh:mm ☐☐	
1.4	Time first sputum test taken	hh:mm ☐☐	
1.5	Time exited facility	hh:mm ☐☐	
1.6	Language treated in: isiXhosa ☐	Afrikaans ☐	English ☐
1.7	Opening statement:	Coughing a lot ☐	Think I have TB ☐

Key summary questions:	**Please answer whether you feel the following questions have been answered on a scale of one to five:** **1 - Definitely yes– 2 Somewhat yes – 3 - Unsure 4 – Somewhat no 5 – Definitely no**
A – You had access to a mask at the facility	
B – The healthcare worker asked about TB symptoms (coughing for > 2 weeks, weight loss)	
C – The healthcare worker offered you an HIV test	
D – The healthcare worker explained the importance of returning to the clinic to get your results	
E – All medical terms were clearly explained and clear language was used	
F – The healthcare worker was friendly, open, compassionate and non-judgemental	

No.	Question	Asked: Yes (1) or No (2) or Don't know/Unsure (3)	If not asked: Given by SP Yes (1) or No (2)	Notes
CLINICAL ASSESSMENT **Section 2: MEDICAL HISTORY**				
2.1	Age			
2.2	Duration of cough?			
2.3	Wet or dry?			
2.4	Sputum in cough? What is the colour of the sputum?			
2.5	Blood in cough?			
2.6	Chest pain?			
2.7	Weight loss?			
2.8	Describe your appetite			
2.9	Night sweats			
2.10	Are you tired?			
2.11	Shortness of breath?			
2.12	Fever? How long?			
2.13	Severity?			
2.14	Do you have a cold/flu?			
2.15	Body aches? Headache?			

2.16	Does anyone in the household have TB?			
2.17	Is anyone in the household coughing?			
2.18	Are you taking medication?			
2.19	Have you ever taken TB meds?			
2.20	Do you smoke?			
2.21	Do you drink?			
2.22	Were you asked when last you were tested for HIV?			
2.23	Were you asked to disclose your HIV status?			
2.24	Were you told why it was necessary for the healthcare worker to know your HIV status?			
2.25	Did you have access to a mask at the facility?			
	SUB TOTAL			
SOCIAL HISTORY				
2.26	Any questions about community/family background?			
2.27	Is anyone in the household under 5 years or older than 60 years?			
	SUB TOTAL			
PHYSICAL EXAMINATION				
2.28	Height			
2.29	Weight			
2.30	Temperature			
2.31	Pulse rate			

2.32	Blood pressure		
2.33	Examination of mouth/throat		
2.34	Chest percussions (tapping your chest)		
2.35	Chest auscultation (using a stethoscope)		
2.36	Feeling for lymph nodes (glands in neck)		
	SUB TOTAL		

Section 3: TESTS			
3.1	TB test (provided 2 x sputum containers)		
3.2	HIV test offered		
3.3	HIV test conducted		
	SUB TOTAL		

Section 4: TREATMENT				
4.1	Medicines dispensed?			
	If yes, details:			
	Name:	Dose:	Duration:	
4.2	Counselling on cough etiquette?			
4.3	Counselling on hand washing?			
4.4	Counselling on infection control measures **at home** for example, open windows and curtains, ensure adequate ventilation?			
	SUB TOTAL			
Section 5: DIAGNOSIS				
5.1	Did the healthcare worker discuss a possible diagnosis?			
5.2	If yes, what was it?			
	SUB TOTAL			
Section 6: FOLLOW UP QUESTIONS				
6.1	Did the healthcare worker give you an appointment card with a specific date to return to the clinic for results?			
6.2	If yes, how many days were you requested to return?			
6.3	Did the healthcare worker explain the importance of returning to the clinic for results?			
6.4	Did the healthcare worker ask you to return to the clinic if your symptoms got worse?			

	SUB TOTAL		

Section 7: FEES			
7.1	Fee charged by healthcare worker	R.	
7.3	**TOTAL FEE**	**R.**	

Section 8	Subjective questions related to clinical quality		Comments
8.1	Did the healthcare worker discuss possibilities to prevent a similar situation (wrt TB) in the future?	Yes=1 No=2 Don't know/Unsure=3	
8.2	Did the healthcare worker adequately explain medical terms	Yes=1 No=2 Don't know/Unsure=3	
8.3	Did the healthcare worker ask sufficient questions about medical history.	Yes=1 No=2 Don't know/Unsure=3	
8.4	Was an invitation extended to you to ask more questions.	Yes=1 No=2 Don't know/Unsure=3	
8.5	Did you feel like you knew what was going on the entire time during your visit?	Yes=1 No=2 Don't know/Unsure=3	
8.6	Did you feel like the healthcare worker understood your problem (she was empathetic towards you)?	Yes=1 No=2 Don't know/Unsure=3	

8.7	Did you like this healthcare worker?	Yes=1 No=2 Don't know/Unsure=3	
8.8	Regardless, did you feel that the healthcare worker addressed your problem?	Yes=1 No=2 Don't know/Unsure=3	
8.9	Would you go to this healthcare worker again?	Yes=1 No=2 Don't know/Unsure=3	
8.10	How satisfied were you with the care you received? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**		

Section 9	Global assessment scale	
9.1	How satisfied/comfortable were you with the environment which the healthcare worker created for you to convey your symptoms? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4**	

	Very dissatisfied =5	

9.2	How satisfied were you with the knowledge the healthcare worker had regarding your query? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	
9.3	Did the healthcare worker address your concern seriously? How satisfied are you with how seriously he/she addressed your concerns? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	
9.4	How satisfied are you with how well the healthcare worker explained TB and its various aspects to you? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	
9.5	How satisfied are you with the way that healthcare worker explained infection control measures to you? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	

Section 10	Non-clinical quality	
10.1	How long did it take to create a file and other clerical tasks?	☐☐ ☐☐ H H M
10.2	How long did you sit in the waiting area before seeing the healthcare worker?	☐☐ ☐☐ H H M
10.3	How long were you with the healthcare worker/ process time excluding creating a file and clerical tasks?	Basic screening ☐☐ ☐☐ H H M TB room ☐☐ ☐☐ H M
10.4	How satisfied were you with the way the staff greeted and welcomed you at the facility? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	
10.5	How satisfied were you with the cleanliness/hygiene of the facility? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4**	

	Very dissatisfied =5	

10.6	How satisfied were you with the level of privacy in the counseling and testing rooms? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	
10.7	How satisfied were you with the general attitude of the staff towards you? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	
10.8	How satisfied were you with the level of confidentiality with which your medical records were handled? **Very satisfied =1** **Somewhat satisfied =2** **Neutral = 3** **Somewhat dissatisfied = 4** **Very dissatisfied =5**	

10.9	Do you think that the healthcare worker seeing you will discuss anything about your visit with others? **Yes=1** **No=2** **Don't know/Unsure=3**	
10.10	Would you go to this facility again? **Yes=1** **No=2** **Don't know/Unsure=3**	
10.11	Would you recommend a family member or neighbour to the facility? **Yes=1** **No=2** **Don't know/Unsure=3**	
10.12	General comments about your experience at the facility:	

Tool A1-4: Patient Exit Interview Questionnaire

Date	
Clinic Name	
Name Interview	

Opening Statement:

We want you to help us understand your experiences of the healthcare services at public clinics.

You have been chosen to take part in this research because you have recently visited a public healthcare facility.

Would you mind answering a few questions?

If the person agrees to an interview, first ask:

What brought you to the clinic today?

If they answer, TB or contraception (family planning), please go to these sections.

If they answer neither of these, please ask whether the nurse tested their blood pressure during the visit.

If they say yes, ask whether the nurse said it was high. If they say yes, please go to the hypertension segment

Please write down the following information

Time interview started H

Time interview completed H

Language of interview

SECTION 1: General Information			
Your statement: *"First I would like to ask you the following general questions"*			
1.1	How old are you?		
1.2	What is your relationship status?	Single	1
		In a relationship, but living alone	2
		In a relationship and living with my partner	3
		Married	4
1.3	Gender **(Interviewer to indicate gender)**	Female	1
		Male	2
1.4	Population group **(Interviewer to indicate race)**	Black	1
		Coloured	2
		Asian/Indian	3
		White	4
		Other (Specify)_____	5
1.5	What is your home language?	Afrikaans	1
		English	2
		isiXhosa	3
		Other (Specify)_____	4
1.6	What language did the healthcare worker use when communicating with you during the consultation?	Afrikaans	1
		English	2
		Xhosa	3

		Other (Specify) _____	4
1.7	Did you understand the language used by the healthcare worker?	No	0
		Somewhat Yes	1
		Yes	2
1.8	Did you experience any of the following during this particular visit to the health facility? **(Instruction to the field worker: Ask/read all of the options listed below)**		
	Long waiting time	No	0
		Yes	1
	Opening times inconvenient	No	0
		Yes	1
	Drugs unavailable	No	0
		Yes	1
	Additional charges (for example, for drugs)	No	0
		Yes	1
	Staff rude and uncaring	No	0
		Yes	1
	Patients were turned away	No	0
		Yes	1
	None	No	0
		Yes	1
	Other (Specify): _____		

1.9	Is this facility the nearest of its kind to where you stay?	No	0
		Yes	1
1.10	If not the nearest, why is the household normally not using the nearest facility? (Patient can choose more than one response; DO NOT READ OUT THE OPTIONS)		
	Facilities not clean	No	0
		Yes	1
	Long waiting times	No	0
		Yes	1
	Facility is always full	No	0
		Yes	1
	Opening times not convenient	No	0
		Yes	1
	Too expensive	No	0
		Yes	1
	Drugs that were needed not available	No	0
		Yes	1
	Staff rude or uncaring or turned patients away	No	0
		Yes	1
	Incorrect diagnosis	No	0
		Yes	1
	Other (Specify) _____	2	

SECTION 2: Non-clinical quality			
2.1	What time did you arrive at the facility?	:	
2.2	What time did you leave the facility? **(Interviewer to indicate exit time)**	:	
2.3	At what time did you see a healthcare worker **for the first time**?	:	
2.4	What do you think would be a reasonable (good) waiting time to see a healthcare worker?	:	
2.5	How many people were waiting in the general waiting room when you arrived? **(Circle or tick the appropriate option)**	Very full	
		Somewhat full	
		Empty (few people)	
Next, explain how the satisfaction scale works. With 1 being very dissatisfied, and 5 very satisfied: ***(Instruction to the field worker: you may want to use an example to make the use of the scale clear)***			
2.6	How satisfied were you with the service you received during this particular visit?	Very dissatisfied	1
		Somewhat dissatisfied	2
		Neutral	3
		Somewhat satisfied	4
		Very satisfied	5
2.7	How satisfied were you with the way the staff greeted and welcomed you at the facility?	Very dissatisfied	1
		Somewhat dissatisfied	2
		Neutral	3

		Somewhat satisfied	4
		Very satisfied	5
2.8	How satisfied were you with the general attitude of the staff towards you?	Very dissatisfied	1
		Somewhat dissatisfied	2
		Neutral	3
		Somewhat satisfied	4
		Very satisfied	5
2.9	How satisfied were you with the cleanliness/ hygiene of the facility?	Very dissatisfied	1
		Somewhat dissatisfied	2
		Neutral	3
		Somewhat satisfied	4
		Very satisfied	5
2.10	How satisfied were you with the level of privacy in the counselling and testing rooms?	Very dissatisfied	1
		Somewhat dissatisfied	2
		Neutral	3
		Somewhat satisfied	4
		Very satisfied	5
2.11	Would you go to this facility again?	No	0
		Yes	1
		Don't Know	2
2.12	Would you recommend a family member or neighbour to the facility?	No	0
		Yes	1
		Don't Know	2

SECTION 3: Clinical quality			
3.1	Did any of the healthcare workers provide useful advice on how you could improve your health?	No	0
		Yes	1
		Don't Know/ Unsure	2
3.2	Did the healthcare worker explain the tests he/she were doing?	No	0
		Yes	1
		Don't Know/ Unsure	2
3.3	Did the healthcare worker ask questions about previous illnesses?	No	0
		Yes	1
		Don't Know/ Unsure	2
3.4	Did you feel like the healthcare workers understood your problem?	No	0
		Yes	1
		Don't Know/ Unsure	2
3.5	If you received medication, did the healthcare worker explain the effects of the medication before giving it to you?	No	0
		Yes	1
		Don't Know/ Unsure	2
		Not applicable	3
Make sure that the person understands the satisfaction scale			
3.6	How satisfied are you with how well the healthcare worker/s explained the health condition and its various aspects to you?	Very dissatisfied	1
		Somewhat dissatisfied	2
		Neutral	3

		Somewhat satisfied	4
		Very satisfied	5

SECTION 4: Tuberculosis **If patient selected TB on Question 2.2B use spaces below to indicate his/her responses**				
4.1	Why did you go to the TB section?	Get TB test results		1
		Get medication		2
		Go for TB testing		3
4.2	Did you have access to a mask at the facility?	No		0
		Yes		1
		Don't know		2
4.3	The healthcare worker asked about TB symptoms (coughing for > 0 weeks, night sweats, weight loss)	Coughing for > 2 weeks	No	0
			Yes	1
		Night Sweats	No	0
			Yes	1
		Weight Loss	No	0
			Yes	1
		Other (specify): 3		
4.4	The healthcare worker offered you an HIV test?	No		0
		Yes		1
		Don't know		2
4.5	The healthcare worker observed/instructed you while you provided sputum for the sputum test?	No		0
		Yes		1
		Don't know		2
		n/a		3
4.6	Did the healthcare worker give you an appointment card with a specific date to return to the clinic for results/follow up?	No		0
		Yes		1

		Don't know	2
4.7	The healthcare worker explained **the importance** of returning to the clinic to get your results?	No	0
		Yes	1
		Don't know	2
		n/a	3
4.8	Did the healthcare worker ask you to return to the clinic if your symptoms got worse?	No	0
		Yes	1
		Don't know	2

SECTION 5: HYPERTENSION **Complete this is patient's blood pressure was measured**			
5.1	Are you concerned about high blood pressure?	No	0
		Yes	1
		Don't know	2
5.2	Do you suffer from high blood pressure?	No	0
		Yes	1
		Don't know	2
5.3	If so, how do you know that you suffer from high blood pressure	Measured once	1
		Measure repeatedly	2
		Do not feel well	3
		Other reason (describe)	4

5.4	What was your last blood pressure measurement (upper measurement)?		
5.5	What happens to a person with high blood pressure if they do not have it diagnosed and take the medicine prescribed to them? (This is open-ended, the person being interviewed should give their own response.)		
5.6	Did you visit the clinic today mainly to find out if you have high blood pressure?	No	0
		Yes	1
		Don't know	2
5.6a	If so, how many times have you tested your blood pressure before?	Number of times previously tested	
5.7	Was this a high blood pressure check-up?	No	0
		Yes	1
		Don't know	2
5.8	If this visit was for a high blood pressure check-up, when was the last time (before this visit) that you came for a hypertension check-up?	Months ago	
		Years ago	a
5.9	Are you currently taking medicine for your high blood pressures (Are you on treatment?)	No	0
		Yes	1
		Don't know	2
5.10	If so, what pills are you taking?	Pill 1 Name	
		Pill 2 Name	
		Pill 3 Name	
5.11	Did the nurse measure your blood pressure during this visit?	No	0
		Yes	1
		Don't know	2
5.12		No	0

	Did the HC worker asked if you have had any of the following symptoms: numbness of face, arm or leg, difficulties speaking, blurred or decreased vision, dizziness, severe new headaches?	Yes		1
		Don't know		2
5.13	The healthcare worker asked about your smoking?	No		0
		Yes		1
		Don't know		2
5.14	The healthcare worker measured your weight?	No		0
		Yes		1
		Don't know		2
5.15	The healthcare worker measured your height?	No		0
		Yes		1
		Don't know		2
5.16	The healthcare worker advised you on lifestyle changes **(The patient can choose more than one response. Please indicate all options)**	Diet	No	0
			Yes	1
		Smoking	No	0
			Yes	1
		Exercise	No	0
			Yes	1
		Alcohol	No	0
			Yes	1
5.17	Did you have to give the nurse a urine sample?	No		0
		Yes		1
		Don't know		2

SECTION 6: CONTRACEPTION/FAMILY PLANNING **If patient selected Contraception on Question 1.6 use spaces below to indicate his/her responses**			
6.1	Why did you go to the family planning section?	For a family planning consultation	1
		For a check up	2
		To get contraception/medication	3
6.2	The healthcare worker asked about <u>your own</u> medical history (previous births, chronic medication, and gynaecological problems.)?	No	0
		Yes	1
		Don't know	2
6.3	The healthcare worker asked you about <u>your family's</u> medical history (for example, heart disease, blood clots, breast cancer, high blood pressure)?	No	0
		Yes	1
		Don't know	2
6.4	The healthcare worker asked about your life circumstances (for example, where you live, where and whether you work, transport)	No	0
		Yes	1
		Don't know	2
6.5	A urine pregnancy test was done	No	0
		Yes	1
		Don't know	2
6.6	The healthcare work advised that you use dual contraception (use of a male or female condom barrier with your other contraception)	No	0
		Yes	1

		Don't know	2
6.7	The healthcare worker described the advantages and disadvantage of contraception options	No	0
		Yes	1
		Don't know	2
6.8	You left the clinic with a clear contraception recommendation (the nurse recommended/suggested one specific contraception option for you)	No	0
		Yes	1
		Don't know	2
6.9	You were given a choice between contraception options	No	0
		Yes	1
		Don't know	2
6.10	An HIV test was offered or done	No	0
		Yes	1
		Don't know	2

SECTION 7: Vignettes on patient communication		
7.1	How would you rate the experience of how clearly healthcare providers communicated with you?	Very Bad=1 Bad=2 Moderate=3 Good=4 Very Good=5
7.2	**Please also score the experiences of the five individuals described below:**	

	(Instruction to the field worker: please explain how the scale works)	
7.2.1	Hassan goes to the clinic because of intense stomach pain. After the investigations, the nurse sits down with Hassan and for 10 minutes explains his diagnosis and the way the treatment works. Once or twice Hassan asks her what she means. The nurse answers him using specific examples.	Very Bad=1 Bad=2 Moderate=3 Good=4 Very Good=5
7.2.2	Nomsa arrived at the clinic with her three-month-old baby girl. Nomsa says that the baby has lost a lot of weight, has had fever for two days and will not take her milk. After a brief discussion the nurse explained what she thought was the problem. She asked Nomsa if she understood and gave her some powdered milk and medicine to give to the baby.	Very Bad=1 Bad=2 Moderate=3 Good=4 Very Good=5
7.2.3	Jacqueline has been told that she has TB and that she needs to take medication. The nurse has very briefly explained what the condition is. The nurse is very busy and there is a queue of patients waiting to see her. Jacqueline would like to know more about the disease she has, but feels that there is no time to ask questions.	Very Bad=1 Bad=2 Moderate=3 Good=4 Very Good=5
7.2.4	Thabiso has been feeling dizzy and has problems sleeping. He went to the clinic. The nurse did not seem very interested in what he was telling her. She told Thabiso it was nothing and wrote something on a piece of paper, telling him to get the medication at the pharmacy.	Very Bad=1 Bad=2 Moderate=3 Good=4 Very Good=5

SECTION 8: Socioeconomic status			
8.1	Where do you live?	**Brick** house/flat/townhouse or room in brick house/flat/townhouse	1
		Informal dwelling or shack **not in a backyard**	2
		Informal dwelling/shack in backyard	3

		Other (specify) _____	4

8.2	**In your household is there:**	No (0); Yes (1); Don't know (2)
	Someone with a university degree?	
	Someone with a job?	
	Electricity?	
	Do you have hot water from the tap?	
	Television?	
	Refrigerator/freezer?	
	Satellite dish?	
	Car?	
	Someone with a mobile (cell) phone	
8.3	**Electricity usage**	No (0); Yes (1); Don't know (2)
	Do you use electricity for heating?	
	Do you use electricity for cooking?	

8.4	In the past 10 months, did any person in your household go hungry because there wasn't enough food?	Never	1
		Seldom	2
		Sometimes	2
		Often	4
		Always	5

8.5	What is the highest level of education you have attained?	No schooling	1
		Primary	2
		Secondary	3

		Matric	4
		Tertiary (for example, university, college)	5

Appendix 1B: Permission letters from Department of Health

Re: Using The Standardized Patient Approach To Improve The Understanding Of Quality Of Care In The Public Primary Health Care Facilities In The Eastern Cape: Pilot Study perceptions, (EC_2016RP1_223)

The Department of Health would like to inform you that your application for conducting a research on the abovementioned topic hasbeenapprovedbasedon the following conditions:

1. During your study, you will follow the submitted protocol with ethical approval and can only deviate from it after having awritten approval from the Department of Health in writing.
2. You are advised to ensure, observe and respect the rights and culture of your research participants and maintain confidentiality of their identities and shall remove or not collect any information which can be used to link the participants.
3. The Department of Health expects you to provide a progress on your study every 3 months (from date you received this letter) in writing.
4. At the end of your study, you will be expected to send a full written report with your findings and implementable recommendations to the Epidemiological Research and Surveillance Management. You may be invited to the department to come andpresent your research findings with your implementable recommendations.
5. Your results on the Eastern Cape will not be presented anyw here unless you have shared them with the Department of Health as indicated above.

Your compliance in this regard will be highly appreciated.

SECRETARIAT: EASTERN CAPE HEALTH RESEARCH COMMITTEE

PROVINCIAL GROWTH AND DEVELOPMENT PLAN
PGDP
EASTERN CAPE
2004 - 2014
Ikamva eliqaqambileyo!

For attention: Prof Ronelle Burger, Ms Laura Rossouw

Re: Understanding clinical quality of care in public primary health care facilities in South Africa.. Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with on electronic copy of the final feedback **(annexure *9)*** within six months of completion of research. This con be submitted to the provincial Research Co-ordinator
   (Heolth. Researc h@w esternc op e.g o v .zo).
3. In the event where the research project goes beyond the *estimated completion* dote which was submitted, rese archers are expected to complete and submit a progress rep ort **(Annexure 8)** to the provincial Research Co-ordinator
   (Heolth.Researc h@w este rnc ap e.g o v.zo).
4. The reference number above should be quoted in **all** future correspondence.

Yours sincerely

Appendix 1C: Ethical Clearance

NOTICE OF APPROVAL

REC: Social, Behavioural and Education Research (SBER) - Initial Application Form

16 September 2019

Project number: 9913

Project Title: Accountability and Service Delivery in Education and Health

Dear Mr Dumisani Hompashe

Co-investigators:

Mrs Carmen Christian

Your REC: Social, Behavioural and Education Research (SBER) - Initial Application Form submitted on **28 June 2019** was reviewed and approved by the REC: Humanities.

Please note the following for your approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
16 September 2019	15 September 2022

GENERAL COMMENTS:

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your **SU project number (9913)** on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Proof of Ethics Clearance	Humanities REC letter initial approval SP study	29/10/2014	1
Proof of Ethics Clearance	REC approval_stipulations	30/07/2015	1
Research Protocol/Proposal	Final Proposal 28 June 2019_Revised	28/06/2019	2

If you have any questions or need further help, please contact the REC

office at cgraham@sun.ac.za. Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

Appendix 1D: Figures

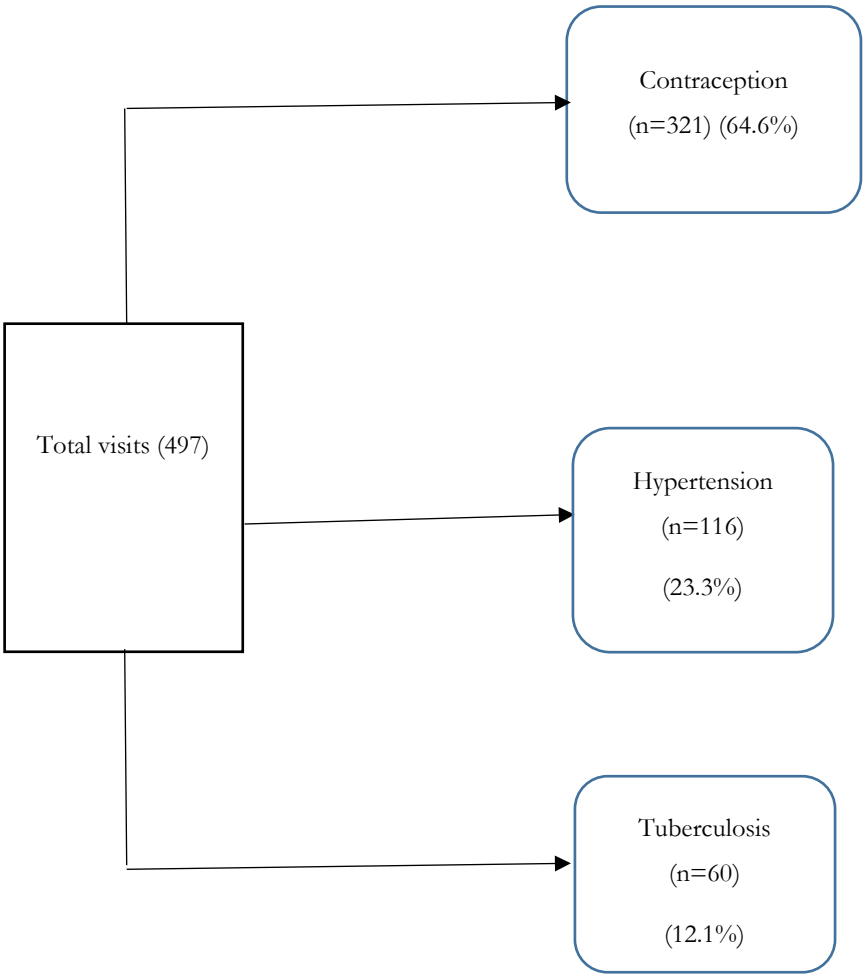


Figure A1-1: Total analysable visits for RPs

Appendix 1E: Tables

Table A1-1: Analysable visits for SPs

	Contraception	Hypertension	Tuberculosis
Anticipated visits	n=156	n=156	n=156
Facility not visited since SP's 'home facility'	-	-	n=4
Failed visits	n=17	n=62	n=9
Analysable visits	n=139	n=94	n=143

'Home facility' refers to a primary healthcare facility that the SP used regularly (Christian et al., 2018).

Failed visits were defined as an SP not entering the facility or being turned away from the facility at any point before being seen by a healthcare worker (Christian et al., 2018).

Table A1-2: Patient characteristics for RP and SP samples

	RP (n=497)		SP (n=376)	
	Mean (average %)	**95% Conf. Interval**	**Mean (average %)**	**95% Conf. Interval**
Age	35	33.5 – 35.7	33	32.1 – 34.2
Gender				
Female	79%	74.8% - 82.1%	28%	24.1% - 33.2%
Population Group				
Black	79%	75.3% - 82.4%	75%	70.3% - 79.1%
Province				
Western Cape dummy	31.6%	27.6% - 35.8%	47.1%	42.6% - 52.2%
Education Level				
Primary education	50.0%	45.6% - 54.4%	21.8%	17.9% - 26.3%
Secondary education	36.7%	32.6% - 41.1%	27.4%	23.1% - 32.1%
Tertiary education	13.3%	10.5% - 16.6%	50.8%	45.7% - 55.8%
Socioeconomic Characteristics				
Presence of satellite dish	46.7%	42.3% - 51.1%	65.7%	60.5% - 70.6%
Presence of motor vehicle	34.5%	30.5% - 38.9%	42.8%	37.6% - 48.2%

Source: Author's own calculations from the collected dataset

Table A1-3: Clinical quality characteristics for SPs

Contraception Clinical Quality Measures	**Mean (average %)**	**95% Conf. Interval**
Healthcare worker asked about medical history (n=139)	30%	22.5% - 37.9%
Healthcare worker asked about family history (n=139)	12%	0.7% - 17.7%
Healthcare worker asked about life circumstances (n=139)	30%	22.5% - 37.9%
Urine pregnancy test conducted (n=139)	45%	36.2% - 53.0%
Healthcare worker explained all contraception options (n=137)	60%	51.5% - 68.2%
Healthcare worker described advantages and disadvantages of	48%	39.3% - 56.3%
HIV test offered (n=139)	22%	14.6% - 28.5%
Hypertension Clinical Quality Measures		
Blood pressure offered (n=93)	96%	91.5% - 99.9%
Urine dipstick offered (n=92)	25%	16.0% - 34.0%
Healthcare worker asked about smoking (n=87)	24%	14.9% - 33.3%
Healthcare worker advised about diet (n=89)	51%	40.0% - 61.2%
Healthcare worker advised about exercise (n=89)	29%	19.6% - 38.8%
Healthcare worker advised about smoking (n=90)	21%	12.5% - 29.7%
Healthcare worker advised about alcohol (n=90)	18%	9.7% - 25.8%
Tuberculosis Clinical Quality Measures		
Patient asked to return if symptoms got worse (n=141)	9%	4.44 - 14.1%
Healthcare worker explained importance of returning for results	11%	5.6% - 16.0%
Healthcare worker provided appointment card with date to return for	30%	22.0% - 37.4%
Healthcare worker asked about night sweats (n=142)	59%	51.0% - 67.3%
Healthcare worker asked about weight loss (n=143)	55%	46.3% - 62.8%
Healthcare worker asked about duration of cough (n=142)	80%	73.7% - 86.9%
Patient had access to mask (n=143)	48%	40.0% - 56.5%
HIV test was offered (n=141)	47%	38.5% - 55.1%

Source: Own calculations from the collected dataset

Table A1-4: Clinical quality characteristics for RPs

Contraception Clinical Quality Measures	**Mean (average %)**	**95% Conf. Interval**
Healthcare worker asked about medical history (n=321)	34%	29.0% - 39.5%
Healthcare worker asked about family history (n=316)	27%	22.6% - 32.5%
Healthcare worker asked about life circumstances (n=318)	31%	26.0% - 36.2%
Urine pregnancy test conducted (n=313)	41%	35.1% - 46.0%
Healthcare worker explained all contraception options (n=309)	82%	77.6% - 86.2%
Healthcare worker described advantages and disadvantages of	66%	60.6% - 71.2%
HIV test offered (n=319)	37%	32.0% - 42.6%
Hypertension Clinical Quality Measures		
Blood pressure offered (n=104)	91%	85.8% - 96.8%
Urine dipstick offered (n=114)	10%	4.8 - 16.2%
Healthcare worker advised about diet (n=115)	43%	34.3% - 52.7%
Healthcare worker advised about exercise (n=107)	18%	10.4% - 25.1%
Healthcare worker advised about smoking (n=111)	31%	22.7% - 40.3%
Healthcare worker advised about alcohol (n=107)	34%	24.5% - 42.7%
Tuberculosis Clinical Quality Measures		
Patient asked to return if symptoms got worse (n=59)	81%	71.1% - 91.6%
Healthcare worker explained importance of returning for results	88%	79.6% - 96.6%
Healthcare worker provided appointment card with date to return for	88%	79.6% - 96.6%
Healthcare worker asked about night sweats (n=58)	88%	79.2% - 96.6%
Healthcare worker asked about weight loss (n=58)	83%	72.7% - 92.8%
Healthcare worker asked about duration of cough (n=60)	93%	86.8% - 99.8%
Patient had access to mask (n=59)	66%	53.7% - 78.5%
HIV test was offered (n=60)	80%	69.6% - 90.4%

Source: Own calculations from the collected dataset

Table A1-5: Own medical history in contraception analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Own medical history	0.137***	0.093*	0.255***	0.096*
	(0.044)	(0.052)	(0.0937)	(0.050)
Standardised Patient dummy	-0.196***	-0.199***		
	(0.052)	(0.053)		
Age	-0.000	-0.000	-0.060**	0.0020
	(0.004)	(0.003)	(0.0251)	(0.0034)
Secondary education	0.039	0.053	-0.240	0.018
	(0.055)	(0.055)	(0.333)	(0.054)
Tertiary education	-0.030	-0.015	-0.0869	-0.047
	(0.063)	(0.062)	(0.194)	(0.075)
Satellite	0.018	0.033	-0.210	0.063
	(0.053)	(0.053)	(0.161)	(0.055)
Motor car or Bakkie	0.007	0.008	0.133	0.0228
	(0.051)	(0.051)	(0.123)	(0.056)
Constant	0.729***	0.691***	2.172***	0.659***
	(0.111)	(0.199)	(0.709)	(0.107)
Observations	455	455	139	316
R-squared	0.077	0.253	0.111	0.024

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-6: Life circumstances in contraception analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Life circumstances	0.094**	0.095**	0.269***	0.031
	(0.046)	(0.047)	(0.094)	(0.051)
Standardised Patient dummy	-0.188***	-0.199***		
	(0.053)	(0.053)		
Age	-0.012	-0.001	-0.064**	0.003
	(0.004)	(0.003)	(0.025)	(0.003)
Secondary education	0.022	-0.050	-0.340	0.005
	(0.055)	(0.055)	(0.332)	(0.054)
Tertiary education	-0.054	0.021	-0.180	-0.065
	(0.064)	(0.062)	(0.193)	(0.075)
Satellite dish	0.080	0.012	-0.192	0.054
	(0.054)	(0.054)	(0.159)	(0.056)
Motor car or Bakkie	0.020	0.022	0.150	0.040
	(0.051)	(0.051)	(0.124)	(0.057)
Constant	0.711***	0.693***	2.312***	0.657***
	(0.115)	(0.199)	(0.706)	(0.111)
Observations	452	452	139	313
R-squared	0.065	0.253	0.116	0.014

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-7: **Asking about night sweats in tuberculosis analysis**

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Night sweats	0.416***	0.380***	0.456***	0.327*
	(0.0739)	(0.0820)	(0.0901)	(0.163)
Standardised Patient dummy	-0.270***	-0.212**		
	(0.0828)	(0.0930)		
Age	0.000547	-0.00499	0.0428	-0.00224
	(0.00479)	(0.00518)	(0.0636)	(0.00596)
Secondary education	0.186*	0.107	0.0790	0.204
	(0.0963)	(0.104)	(0.155)	(0.144)
Tertiary education	0.114	0.227*	0.587	0.267
	(0.108)	(0.117)	(0.901)	(0.174)
Satellite dish	-0.181*	-0.208**	-0.672	-0.138
	(0.0950)	(0.103)	(0.851)	(0.112)
Motor car or bakkie	-0.0944	-0.0397	-0.353	-0.0650
	(0.0820)	(0.0869)	(0.392)	(0.116)
Constant	0.494**	0.468	-0.860	0.610**
	(0.190)	(0.329)	(1.661)	(0.265)
Observations	184	184	126	58
R-squared	0.321	0.513	0.272	0.119

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-8: Explanation of contraception options test in contraception analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Explanation of contraception options	0.313***	0.254***	0.475***	0.244***
	(0.048)	(0.049)	(0.083)	(0.061)
Standardised Patient dummy	-0.116**	-0.133**		
	(0.053)	(0.053)		
Age	0.001	0.001	-0.066***	0.003
	(0.003)	(0.003)	(0.023)	(0.003)
Secondary education	0.023	0.0376	-0.294	0.008
	(0.054)	(0.055)	(0.305)	(0.054)
Tertiary education	-0.056	-0.033	-0.162	-0.047
	(0.062)	(0.062)	(0.177)	(0.074)
Satellite dish	-0.004	0.009	-0.307**	0.056
	(0.053)	(0.053)	(0.147)	(0.055)
Motor car or Bakkie	0.041	0.041	0.291**	0.025
	(0.050)	(0.051)	(0.117)	(0.056)
Constant	0.484***	0.533***	2.160***	0.456***
	(0.117)	(0.398)	(0.651)	(0.118)
Observations	441	441	137	304
R-squared	0.134	0.296	0.257	0.143

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-9: Explanation of advantages and disadvantages of contraception options

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Explaining advantages and disadvantages of contraception options	0.330***	0.283***	0.510***	0.254***
	(0.040)	(0.042)	(0.074)	(0.047)
Standardised Patient dummy	-0.155***	-0.177***		
	(0.050)	(0.051)		
Age	-0.002	-0.001	-0.065***	0.001
	(0.003)	(0.003)	(0.022)	(0.003)
Secondary education	-0.005	-0.005	-0.296	-0.025
	(0.053)	(0.053)	(0.292)	(0.052)
Tertiary education	-0.049	-0.049	-0.148	0.063
	(0.060)	(0.112)	(0.170)	(0.073)
Satellite dish	0.026	-0.0928	-0.267*	0.070
	(0.051)	(0.111)	(0.140)	(0.053)
Motor car or Bakkie	0.037	0.127	0.206*	0.011
	(0.049)	(0.0848)	(0.108)	(0.054)
Constant	0.579***	0.856**	2.179***	0.579***
	(0.203)	(0.364)	(0.624)	(0.106)
Observations	444	444	138	306
R-squared	0.186	0.338	0.316	0.098

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-10: Providing advice on diet in hypertension analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Receiving advice on diet	0.179**	0.263***	0.316**	0.0386
	(0.0697)	(0.0806)	(0.126)	(0.0830)
Standardised Patient dummy	-0.114	-0.0622		
	(0.0942)	(0.101)		
Age	-0.00390	-0.00419	-0.00744	-0.000179
	(0.00310)	(0.00327)	(0.0104)	(0.00313)
Secondary education	-0.138	-0.0843	-0.167	-0.133
	(0.0954)	(0.105)	(0.409)	(0.0936)
Tertiary education	-0.325***	-0.262	-0.420	-0.168
	(0.122)	(0.163)	(0.463)	(0.176)
Satellite dish	0.130*	0.124	0.0836	0.185**
	(0.0749)	(0.0779)	(0.381)	(0.0716)
Motor car or bakkie	0.0429	0.0213	0.139	-0.0444
	(0.0670)	(0.0725)	(0.162)	(0.0711)
Constant	0.882***	0.942***	0.921*	0.804***
	(0.180)	(0.229)	(0.520)	(0.181)
Observations	187	187	70	117
R-squared	0.168	0.373	0.174	0.067

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-11: Advising about smoking in hypertension analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Advising about smoking	0.196***	0.145*	0.330**	0.142**
	(0.0662)	(0.0748)	(0.155)	(0.0696)
SP	-0.154*	-0.155		
	(0.0871)	(0.101)		
Age	-0.00194	-0.00303	-0.00395	0.000146
	(0.00297)	(0.00324)	(0.0109)	(0.00287)
Secondary education	-0.0479	-0.0384	-0.0318	-0.117
	(0.0905)	(0.100)	(0.407)	(0.0881)
Tertiary education	-0.210*	-0.111	-0.405	-0.0200
	(0.112)	(0.155)	(0.465)	(0.136)
Satellite dish	0.152**	0.145*	0.278	0.174**
	(0.0731)	(0.0780)	(0.385)	(0.0685)
Motor car or bakkie	0.0337	0.0168	0.155	-0.0570
	(0.0653)	(0.0728)	(0.164)	(0.0682)
Constant	0.767***	0.903***	0.628	0.722***
	(0.178)	(0.238)	(0.544)	(0.171)
Observations	191	191	68	123
R-squared	0.177	0.342	0.159	0.091

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-12: Providing advice on alcohol use in hypertension analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Received advice on alcohol	0.213***	0.269***	0.475***	0.0509
	(0.0751)	(0.0899)	(0.163)	(0.0838)
Standardised Patient dummy	-0.0485	0.0814		
	(0.105)	(0.115)		
Age	-0.00378	-0.00522	0.00257	-0.000920
	(0.00323)	(0.00335)	(0.0114)	(0.00332)
Secondary education	-0.197*	-0.206*	-0.0234	-0.202*
	(0.103)	(0.110)	(0.409)	(0.104)
Tertiary education	-0.350***	-0.411**	-0.256	-0.311
	(0.131)	(0.177)	(0.461)	(0.225)
Satellite dish	0.157**	0.168**	-0.0131	0.196***
	(0.0776)	(0.0799)	(0.387)	(0.0739)
Motor car or bakkie	0.0551	0.0256	0.132	-0.0265
	(0.0687)	(0.0730)	(0.161)	(0.0730)
Constant	0.835***	0.872***	0.447	0.825***
	(0.187)	(0.240)	(0.558)	(0.186)
Observations	182	182	71	111
R-squared	0.187	0.409	0.183	0.089

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-13: Explaining the importance of returning to clinic for results in tuberculosis analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Importance of returning to clinic for results	0.255**	0.203	0.477***	-0.0659
	(0.126)	(0.135)	(0.177)	(0.163)
Standardised Patient dummy	-0.234*	-0.254*		
	(0.134)	(0.143)		
Age	-0.00353	-0.00944*	0.00967	-0.00273
	(0.00489)	(0.00519)	(0.0680)	(0.00551)
Secondary education	0.222**	0.118	0.220	0.295**
	(0.103)	(0.111)	(0.164)	(0.141)
Tertiary education	0.196*	0.310**	0.476	0.197
	(0.114)	(0.121)	(0.970)	(0.163)
Satellite dish	-0.193*	-0.219**	-0.553	-0.0418
	(0.101)	(0.108)	(0.916)	(0.106)
Motor car or bakkie	-0.141	-0.0470	-0.126	-0.117
	(0.0862)	(0.0916)	(0.420)	(0.113)
Constant	0.804***	0.842**	0.236	0.961***
	(0.220)	(0.364)	(1.769)	(0.266)
Observations	183	183	124	59
R-squared	0.226	0.451	0.161	0.088

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-14: Urine pregnancy test in contraception analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Urine pregnancy test	0.011	0.021	0.003	0.009
	(0.042)	(0.051)	(0.089)	(0.048)
Standardised Patient dummy	-0.209***	-0.218***		
	(0.053)	(0.053)		
Age	0.001	0.001	-0.060**	0.004
	(0.004)	(0.004)	(0.026)	(0.003)
Secondary education	0.004	0.032	-0.299	-0.013
	(0.056)	(0.055)	(0.353)	(0.054)
Tertiary education	-0.041	-0.015	-0.147	-0.057
	(0.064)	(0.062)	(0.204)	(0.075)
Satellite dish	0.005	0.013	-0.108	0.037
	(0.054)	(0.054)	(0.166)	(0.056)
Motor car or Bakkie	0.034	0.035	0.043	0.070
	(0.052)	(0.052)	(0.123)	(0.058)
Constant	0.743***	0.719***	2.268***	0.658***
	(0.115)	(0.203)	(0.745)	(0.111)
Observations	447	447	139	308
R-squared	0.059	0.250	0.062	0.015

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-15: Offering HIV test in contraception analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
HIV test offered	0.109**	0.027	0.309***	0.044
	(0.045)	(0.053)	(0.103)	(0.048)
Standardised Patient dummy	-0.186***	-0.206***		
	(0.053)	(0.054)		
Age	0.000	0.001	-0.045*	0.002
	(0.004)	(0.003)	(0.026)	(0.003)
Secondary education	0.020	0.034	-0.066	-0.004
	(0.055)	(0.055)	(0.340)	(0.054)
Tertiary education	-0.044	-0.027	-0.025	-0.066
	(0.063)	(0.063)	(0.196)	(0.075)
Satellite dish	0.024	0.038	-0.224	0.070
	(0.054)	(0.053)	(0.161)	(0.055)
Motor car or Bakkie	0.007	0.007	0.072	0.030
	(0.051)	(0.051)	(0.119)	(0.056)
Constant	0.722***	0.728***	1.764**	0.676***
	(0.114)	(0.202)	(0.725)	(0.110)
Observations	453	453	139	314
R-squared	0.071	0.249	0.121	0.016

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-16: Offering of HIV test in tuberculosis analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
HIV test offered	0.268***	0.157*	0.272***	0.282**
	(0.0743)	(0.0944)	(0.0916)	(0.137)
Standardised Patient dummy	-0.374***	-0.365***		
	(0.0808)	(0.0905)		
Age	-0.00456	-0.0102**	-0.00703	0.00162
	(0.00464)	(0.00509)	(0.0668)	(0.00563)
Secondary education	0.252**	0.159	0.320**	0.236*
	(0.0987)	(0.112)	(0.160)	(0.138)
Tertiary education	0.337***	0.376***	0.454	0.256
	(0.117)	(0.124)	(0.951)	(0.169)
Satellite dish	-0.245**	-0.249**	-0.407	-0.118
	(0.0976)	(0.108)	(0.901)	(0.108)
Motor car or bakkie	-0.167**	-0.0862	-0.132	-0.0554
	(0.0840)	(0.0936)	(0.411)	(0.112)
Constant	0.841***	0.885***	0.552	0.527**
	(0.172)	(0.339)	(1.735)	(0.259)
Observations	186	186	126	60
R-squared	0.258	0.440	0.193	0.114

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-17: Offering urine dipstick in hypertension analysis

Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Offering urine dipstick	0.0675	-0.0593	0.156	0.0143
	(0.0734)	(0.0989)	(0.140)	(0.0833)
Standardised Patient dummy	-0.212**	-0.250**		
	(0.0936)	(0.104)		
Age	-0.00168	-0.00262	-0.0110	0.00163
	(0.00324)	(0.00351)	(0.0108)	(0.00304)
Secondary education	-0.138	-0.126	-0.189	-0.183*
	(0.0983)	(0.108)	(0.414)	(0.0970)
Tertiary education	-0.219*	-0.0879	-0.339	-0.0938
	(0.118)	(0.161)	(0.484)	(0.134)
Satellite dish	0.0914	0.0830	0.233	0.133*
	(0.0790)	(0.0838)	(0.390)	(0.0735)
Motor car or bakkie	0.109	0.0906	0.231	0.00946
	(0.0716)	(0.0789)	(0.165)	(0.0755)
Constant	0.862***	1.089***	0.959*	0.750***
	(0.191)	(0.259)	(0.532)	(0.183)
Observations	182	182	73	109
R-squared	0.164	0.355	0.093	0.063

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A1-18: Offering blood pressure test in hypertension analysis

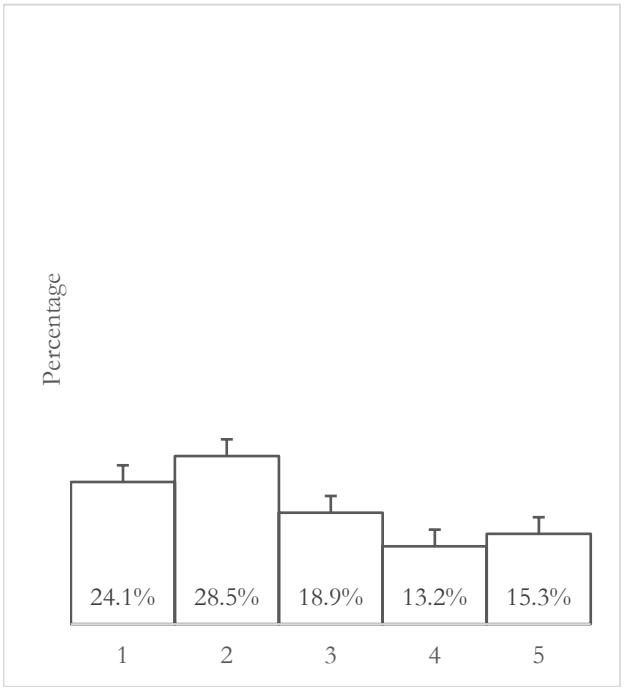
Variables	Whole sample	Facility fixed effects	SPs only	RPs only
Blood pressure offered	0.709**	0.825***	0.617	0.852**
	(0.288)	(0.290)	(0.507)	(0.337)
Standardised Patient dummy	-0.290***	-0.263***		
	(0.0828)	(0.0901)		
Age	-0.00326	-0.00399	-0.0133	-0.000326
	(0.00302)	(0.00317)	(0.0105)	(0.00285)
Secondary education	-0.0782	-0.0262	-0.346	-0.0927
	(0.0938)	(0.102)	(0.402)	(0.0908)
Tertiary education	-0.176	0.00915	-0.541	-0.0666
	(0.112)	(0.148)	(0.464)	(0.131)
Satellite dish	0.0966	0.0817	0.346	0.144**
	(0.0746)	(0.0772)	(0.385)	(0.0681)
Motor car or bakkie	0.0775	0.0515	0.257	-0.0394
	(0.0661)	(0.0713)	(0.162)	(0.0681)
Constant	0.289	0.269	0.551	0.0137
	(0.324)	(0.356)	(0.719)	(0.353)
Observations	195	195	74	121
R-squared	0.181	0.378	0.099	0.094

Standard errors in parentheses

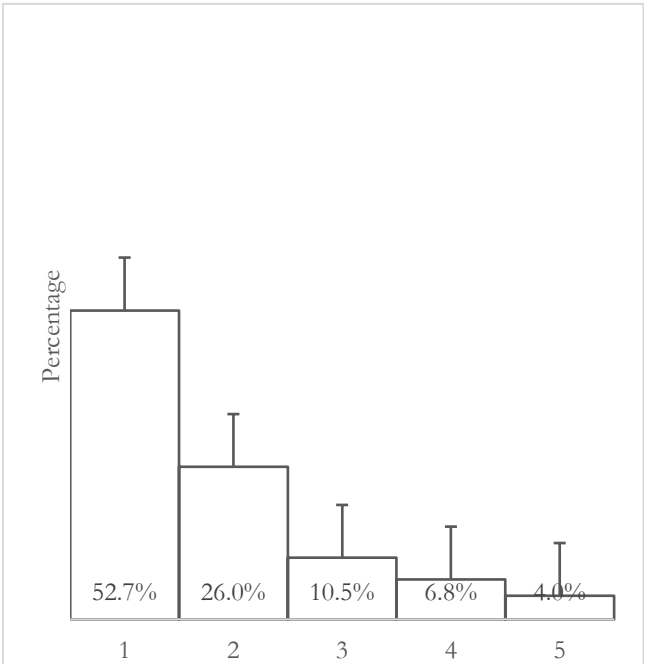
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX 2: CHAPTER 3

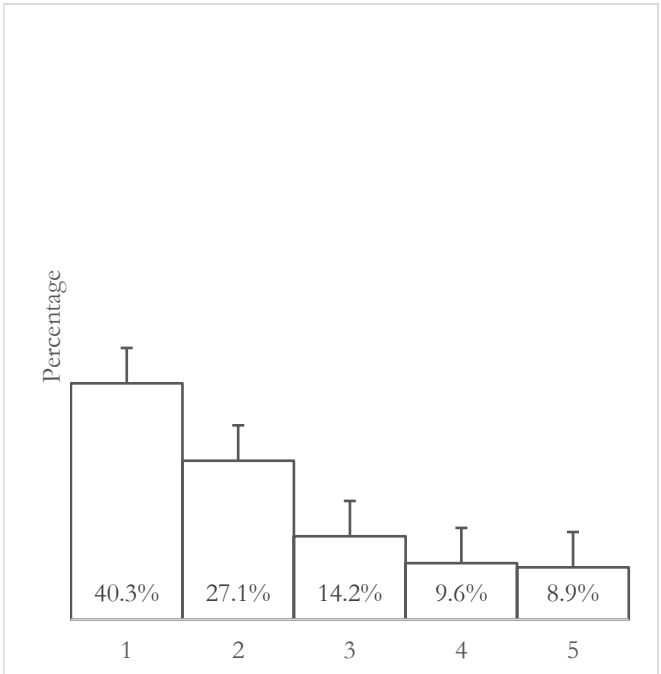
Appendix 2A: Figures



(a) SPs (n = 376)



(b) RPs (n = 497)



Legend

1. Very satisfied
2. Somewhat satisfied
3. Neutral
4. Somewhat dissatisfied
5. Very dissatisfied

(c) Total sample (n = 873)

Figure A2-2 Distribution of overall satisfaction scores for SPs, RPs and total sample

Appendix 2B: Tables

Table A2-1: Sociodemographic characteristics of the sample in percentage

Characteristic	Total sample (*n = 873*)		SP sample (*n = 376*)		RP sample (*n = 497*)	
	Mean	(SE)	Mean	(SE)	Mean	(SE)
Gender						
Male	0.43	(0.02)	0.71	(0.02)	0.21	(0.02)
Female	0.57	(0.02)	0.29	(0.02)	0.79	(0.02)
Age	34.0	(0.40)	33.0	(0.54)	34.6	(0.58)
Less than 30 years	0.49	(0.02)	0.54	(0.03)	0.45	(0.02)
More than 30 years	0.51	(0.02)	0.46	(0.03)	0.55	(0.02
Province						
Eastern Cape	0.62	(0.02)	0.54	(0.03)	0.69	(0.02)
Western Cape	0.38	(0.02)	0.46	(0.03)	0.31	(0.02)
Race						
Black African	0.77	(0.01)	0.75	(0.02)	0.79	(0.02)
Coloured	0.23	(0,01)	0.25	(0.02)	0.21	(0.02)
Education						
Primary	0.38	(0.02)	0.22	(0.02)	0.50	(0.02)
Secondary	0.32	(0.02)	0.26	(0.02)	0.33	(0.02)
Tertiary	0.30	(0.02)	0.52	(0.03)	0.13	(0.02)

Table A2-2: Descriptive statistics of visits by whether they were "somewhat satisfactory" or "very satisfactory"

Characteristic	Very Satisfied			Somewhat Satisfied			Overall
	Mean	10th percentile	90th percentile	Mean	10th percentile	90th percentile	75th percentile
Welcome	2.513	1.700	3.364	2.585	1.889	3.375	3.182
Cleanliness	2.499	1.889	3.364	2.640	1.667	3.556	3.182
Privacy	2.540	2.000	3.369	2.676	1.700	3.5	3.000
Attitude	2.520	1.700	3.375	2.563	1.700	3.364	3.182

Table A2-3: Correlations of variable means at health facility level

Average	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1. Satisfaction for SP	--									
2. Satisfaction for RP	.326*	--								
3. Welcome SP	.661***	.185	--							
4. Welcome RP	.271	.647***	.164	--						
5. Cleanliness SP	.649***	.136	.621***	.286	--					
6. Cleanliness RP	.267	.405*	.087	.356*	.167	--				
7. Attitude SP	.658***	.278	.648***	.263	.625***	.171	--			
8. Attitude RP	.172	.706***	.075	.776***	.178	.603***	.188	--		
9. Privacy SP	.459**	-.093	.459**	.013	.463**	-.248	.509***	-.183	--	
10. Privacy RP	.172	.381*	.022	.413**	.228	.583**	.098	.613**	-.131	--

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, two-tailed. $N = 39$.

Table A2- 4: Cronbach's Alpha results

	Whole scale	Organisational	Interpersonal
Average inter-item covariance	.070	.083	.079
Number of items in the scale	8	4	4
Scale reliability coefficient	.80	.73	.71

Table A2-5: One-way ANOVA results patient experiences with non-clinical factors related to satisfaction with overall care at facility level (SPs)

Variable		Sum of Squares	df	F	Sig.
Welcoming	Between Groups	6.121	1	19.31	0.000*
	Within Groups	118.563	374		
	Total	124.684	375		
Attitude	Between Groups	9.509	1	30.88	0.000*
	Within Groups	115.175	374		
	Total	124.684	375		
Cleanliness	Between Groups	7.276	1	23.18	0.000*
	Within Groups	117.409	374		
	Total	124.684	375		
Privacy	Between Groups	3.344	1	10.31	0.001*
	Within Groups	121.40	374		
	Total	124.684	375		
Medical history	Between Groups	2.517	1	7.75	0.005*
	Within Groups	119.508	368		
	Total	122.025	369		
Understanding problem	Between Groups	5.090	1	16.00	0.000*
	Within Groups	117.091	368		
	Total	122.181	385		
Visit again	Between Groups	7.985	1	25.96	0.000*
	Within Groups	112.898	367		
	Total	120.883	368		
Health condition	Between Groups	5.809	1	18.28	0.000*
	Within Groups	118.875	374		
	Total	124.684	375		

*Note: * The mean difference is significant at the 0.05 level*

Table A2-6: One-way ANOVA results patient experiences with non-clinical factors related to satisfaction with overall care at facility level (RPs)

Variable		Sum of Squares	df	F	Sig.
Welcoming	Between Groups	14.129	1	67.15	0.000*
	Within Groups	104.151	495		
	Total	118.280	496		
Attitude	Between Groups	16.339	1	79.34	0.000*
	Within Groups	101.941	495		
	Total	118.280	496		
Cleanliness	Between Groups	4.527	1	19.70	0.000*
	Within Groups	113.753	495		
	Total	118.280	496		
Privacy	Between Groups	2.174	1	9.27	0.003*
	Within Groups	116.106	495		
	Total	118.280	496		
Medical history	Between Groups	3.626	1	15.65	0.000*
	Within Groups	112.113	484		
	Total	115.739	485		
Understanding problem	Between Groups	8.233	1	37.19	0.000*
	Within Groups	108.029	488		
	Total	116.262	489		
Visit again	Between Groups	1.789	1	7.68	0.006*
	Within Groups	113.547	487		
	Total	115.336	488		
Health condition	Between Groups	12.242	1	57.15	0.000*
	Within Groups	106.037	495		
	Total	118.280	496		

*Note: * The mean difference is significant at the 0.05 level*

Table A2- 7: Logistic regression results examining complementarity of non-clinical variables with clinical variables for Tuberculosis (Total sample)

	Dependent variable:		Satisfaction with general care	
	Total sample		Facility fixed effects	
Variables	OR	(95% CI)	OR	(95% CI)
SP dummy	0.83	(0.20 - 3.41)	0.78	(0.06 - 9.99)
Respect and dignity				
Welcome	2.60*	(0.93 - 7.28)	6.44*	(0.84 - 49.4)
General attitude	1.58	(0.55 - 4.52	1.25	(0.18 - 8.87)
Quality of basic amenities				
Cleanliness	0.91	(0.33 - 2.49)	1.54	(0.26 - 9.17)
Confidentiality				
Level of privacy	2.61**	(1.07 - 6.40)	2.70	(0.27 - 26.92)
Effective communication				
Medical history	2.40*	(0.99 - 5.84)	6.57**	(1.49 - 28.88)
Understanding health problem	7.65***	(2.69 - 21.81)	5.56*	(0.90 - 34.59)
Explaining health condition	1.68	(0.46 - 6.09)	2.26	(0.27 - 18.60)
Clinical quality variable				
HIV test offered (TB)	1.11	(0.39 - 3.15)	1.29	(0.23 - 7.13)
Sociodemographic				
Age	0.84	(0.59 - 1.19)	0.78	(0.39 - 1.54)
Age squared	1.00	(1.00 - 1.01)	1.00	(1.00 - 1.01)
Gender (Ref. Male)				
Female	0.71	(0.26 - 1.91)	1.15	(0.19 - 7.13)
Race (Ref. African)				
Coloured	0.36	(0.07 - 1.91)	0.09	(0.00 - 2.90)
Education (Ref. < Matric)				
Matric	4.93*	(0.86 - 28.40)	10.83	(0.42 - 282.78)
> Matric	3.64*	(0.90 - 14.76)	4.02	0.33 - 49.28)
Province (Ref. Eastern Cape)				
Western Cape	4.13**	(1.38 - 12.39)		
Constant	0.31	(0.00 - 226.59)	0.75	(8.79 - 641.3)
Clusters (facilities)	39		34	
Observations (visits)	198		171	

Note: Robust standard errors adjusted for clustering at facility level shown in parentheses. Significance at *** 1% level ** 5% level * 10% level. Control variables include: age, gender, race, education and province.

Table A2-8: Logistic regression results examining complementarity of non-clinical variables with clinical variables for Tuberculosis (SP and RP sample)

	Dependent variable:		Satisfaction with general care	
	SP sample		RP sample	
Variables	OR	(95% CI)	OR	(95% CI)
Respect and dignity				
Welcome	1.98	(0.59 - 6.62)	0.73	(0.07 - 7.67)
General attitude	1.43	(0.41 - 4.94)	12.28	(0.53 - 284.19)
Quality of basic amenities				
Cleanliness	0.96	(0.28 - 3.34)	2.65	(0.39 - 17.83)
Confidentiality				
Level of privacy	3.84***	(1.57 - 9.40)	1.09	(0.06 - 19.58)
Effective communication				
Medical history	1.42	(0.46 - 4.32)	2.33	(0.42 - 12.81)
Understanding health problem	6.29 ***	(1.96 - 20.23)	66.09**	(2.43 - 1800.29)
Explaining health condition	3.26	(0.43 - 24.66)	0.16	0.01 - 2.92)
Clinical quality variable				
HIV test offered (TB)	1.35	(0.36 - 5.10)	1.05	(0.12 - 9.51)
Sociodemographic				
Age	1.90	(0.84 - 4.28)	0.61	(0.29 - 1.29)
Age squared	0.99	(0.98 - 1.00)	1.01	(1.00 - 1.02)
Province (Ref. Eastern Cape)				
Western Cape	6.58**	(1.24 - 34.84)	6.62	(1.01 - 43.21)
Constant	0.00	(0.00 - 0.71)	23.11	(0.00 - 1635.00)
Clusters (facilities)	39		26	
Observations (visits)	139		59	

Note: Robust standard errors adjusted for clustering at facility level shown in parentheses. Significance at *** 1% level ** 5% level * 10% level. Control variables include: age, age squared and province.

Table A2-9: Logistic regression results examining complementarity of non-clinical variables with clinical variables for Contraception (Total sample)

	Dependent variable:		Satisfaction with general care	
	Total sample		Facility fixed effects	
Variables	OR	(95% CI)	OR	(95% CI)
Respect and dignity				
Welcome	4.50***	(2.41 - 8.39)	6.45***	(2.69 - 15.50)
General attitude	3.11***	(1.34 - 7.22)	2.73*	(0.94 - 7.96)
Quality of basic amenities				
Cleanliness	0.97	(0.53 - 1.77)	0.91	(0.41 - 2.06)
Confidentiality				
Level of privacy	1.82*	(0.91 - 3.63)	2.84**	(1.25 - 6.42)
Effective communication				
Medical history	1.06	(0.53 - 2.13)	1.08	(0.48 - 2.43)
Understanding health problem	1.56	(0.76 - 3.18)	1.18	(0.50 - 2.75)
Explaining health condition	5.82	(2.92 - 11.57)	6.48***	(2.71 - 15.52)
Clinical quality variable				
HIV test offered (FP)	0.82	(0.61 - 1.21)	0.60	(0.22 - 1.59)
Sociodemographic				
Age	0.86	(0.61 - 1.21)	0.78	(0.53 - 1.14)
Age squared	1.00	(1.00 - 1.01)	1.00	(1.00 - 1.01)
Constant	1.04	(0.00 - 239.26)	1.64	(0.01 - 511.59)
Clusters (facilities)	39		36	
Observations (visits)	450		433	

Note: Robust standard errors adjusted for clustering at facility level shown in parentheses. Significance at *** 1% level ** 5% level * 10% level. Control variables include: age and age squared.

Table A2-10: Logistic regression results examining complementarity of non-clinical variables with clinical variables for Contraception (SP and RP samples)

	Dependent variable:		Satisfaction with general care	
	SP sample		RP sample	
Variables	OR	(95% CI)	OR	(95% CI)
Respect and dignity				
Welcome	1.78	(0.65 - 4.89)	9.34***	(4.19 - 20.84)
General attitude	1.18	(0.37 - 3.74)	5.55***	(1.83 - 16.79)
Quality of basic amenities				
Cleanliness	1.79	(0.77 - 4.16)	0.94	(0.34 - 2.62)
Confidentiality				
Level of privacy	3.72**	(1.21 - 11.46)	0.62	(0.20 - 1.95)
Effective communication				
Medical history	0.53	(0.14 - 2.05)	2.05	(0.82 - 5.12)
Understanding health problem	2.91*	(0.89 - 9.52)	0.88	(0.32 - 2.39)
Explaining health condition	6.73***	(2.67 - 16.93)	3.90***	(1.49 - 10.25)
Clinical quality variable				
HIV test offered (FP)	1.68	(0.44 - 6.38)	0.60	(0.26 - 1.38)
Sociodemographic				
Age	0.14	(0.00 - 5.39)	0.89	(0.53 - 1.49)
Age squared	1.03	(0.96 - 1.11)	1.00	(0.99 - 1.01)
Constant	0.00	(0.00 - 0.00)	1.16	(0.00 - 2853.23)
Clusters (facilities)	39		37	
Observations (visits)	139		311	

Note: Robust standard errors adjusted for clustering at facility level shown in parentheses. Significance at *** 1% level ** 5% level * 10% level. Control variables include: age and age squared.

APPENDIX 3: CHAPTER 4

Appendix 3A: Interview Guides

Tool A3-5: Principal Interview Guide

- *Read the Consent Form to the respondent and ask him/her to sign it. Stress in particular that though everything that the respondent answers is taken very seriously and will report on it, his/her response is completely anonymous and confidential.*
- *Also ask the respondent for permission to record the interview and state that this is for the purpose of assisting in capturing his/her responses. If the respondent feels uncomfortable about being recorded you must proceed with the interview without the recording device.*
- *The study is part of a research project on how instructional management is carried out in primary schools to ensure accountability in the system. This study is undertaken by the Department of Economics at the University of Stellenbosch and is financially supported by the Programme to Support Pro-Poor Policy Development (PSPPD), a partnership programme between the Presidency and the European Union.*

Name and surname of the respondent:

……

School of the respondent:

……

Before you begin the interview give the principal an extract below for him/her to read for few minutes:

Mrs Banayi is a principal of Loko Junior Primary school and has just assumed her current post this year. The school is situated in a rural area and the number of learners is small (52) because parents are taking their children to urban schools. In the last post establishment three (3) teaching posts have been declared as excess in the school and the teacher morale is low as a result of this. When she arrived at the school she found that things were not right. Most teachers and learners were coming late to school; there was a high rate of absenteeism among teachers and learners especially on Mondays and Fridays. For the past three years the pupils have been performing badly on the Annual National Assessments (ANAs). And the school has been characterised by existence of conflicts among teachers for some time now. Also almost all teachers are residing about 30 – 50 km from the school and teachers use lift clubs to come to school. Teachers at the school belong to a very strong teacher union that protects their conditions of service. During days when there are union meetings the school breaks off at about 10am. Also sometimes when most teachers have to attend workshops

and meetings organised by Department of Basic Education the school has to break early to allow teachers to attend.

1. *What do you think Mrs Banayi, the principal, should do to curb teacher and learner absenteeism?*

2. *Is there anything that can be done to increase punctuality at school by both teachers and learners?*

3. *How would you describe the state of your school regarding punctuality and attendance by teachers and learners?*

4. *What happens to teachers who do not attend school without valid reason?*
   - ⇨ **Wait for response then prompt:** *Is there a form of punishment meted out against such teachers? If not, why not?*

5. *What are some of the reasons cited by teachers for being absent from school?*

6. *How many teachers were absent yesterday?*

6.1	Due to illness	
6.2	Because they were on duty somewhere (for example, attending workshop or meeting)	
6.3	Because they were on leave	
6.4	Due to union activity	
6.5	Due to other authorised absence – (what is that authorised absence?)	
6.6	Absence not authorised/no reason for absence	
6.7	No absence / none	

NB: Ask the principal to show teacher attendance register for the past 5 days

7. *How many teachers are absent today?*

7.1	Due to illness	
7.2	Because they were on duty somewhere (for example, attending workshop or meeting)	
7.3	Because they were on leave	
7.4	Due to union activity	
7.5	Due to other authorised absence – (what is that authorised absence?)	
7.6	Absence not authorised/no reason for absence	
7.7	No absence / none	

8. How many teachers left early yesterday?

8.1	Due to illness	
8.2	Because they were on duty somewhere (for example, attending workshop or meeting)	
8.3	Because they were on leave	
8.4	Due to union activity	
8.5	Due to other authorised absence – (what is that authorised absence?)	
8.6	Absence not authorised/no reason for absence	
8.7	No absence / none	

9. How many teachers left early today?

9.1	Due to illness	
9.2	Because they were on duty somewhere (for example, attending workshop or meeting)	
9.3	Because they were on leave	

9.4	Due to union activity	
9.5	Due to other authorised absence – (what is that authorised absence?)	
9.6	Absence not authorised/no reason for absence	
9.7	No absence / none	

10. How many teachers were late today and why?

11. To what extent do you and your SMT monitor teaching and learning in the classroom?

12. Are there things that prevent you and your SMT from carrying out your task of monitoring?

⇨ **Wait for response then prompt:** *Things such as conflicts, disputes between leadership and staff, and teacher unions.*

13. *How do you monitor administration of assessment at the Foundation phase level?*
    - ⇨ **Wait for response then prompt:** *Are there formal assessment tasks that teachers give to learners? How often are these tasks given to learners?*

14. *Is the moderation of formal assessment tasks taking place in the school?*
    - ⇨ **Wait for response then prompt:** *And if so, can you explain how this is done?*

15. *Do you and your SMT advocate for improved reading in the school?*
    - ⇨ **Wait for response then prompt:** *Are you or your HODs aware of the reading levels of students in your school? Do you ever sit in on the teacher's lesson to monitor reading?*

16. *How does your school use information about learner performance from tests and examination results to plan for the year ahead?*

17. ***Going back (briefly) to the extract again.*** *If you were Mrs. Banayi, principal, what would you do to address the problem of poor performance in the Annual National Assessments?*

18. *How does your school use the Annual National Assessments? Do your teachers ever use the ANAs to diagnose areas of learner weakness or identify topics in which children are performing poorly or very well?*

19. *To what extent does teacher unionism promote or hamper teaching and learning at your school?*
    - ⇨ **Wait for response then prompt:** *Meetings during school hours, teacher absence due to union work, strikes, and non-cooperation with the Department.*

20. *Are your teachers motivated in their work?*
    - ⇨ **Wait for response then prompt:** *If so, why do you say that? If not, why not?*

21. *Does your school have programmes to motivate teachers and / learners?*
    - ⇨ **Wait for response then prompt:** *If yes, what is the nature of those programmes? Can you give examples? Are the programmes having an impact?*

22. *Are teachers at your school rewarded for their professional competence?*
    - ⇨ **Wait for response then prompt:** *If so, how is this implemented? If not, would you consider introducing that at your school? And how would you go about doing that?*

23. *Is the Integrated Quality Management System (IQMS) implemented at your school?*
    - ⇨ **Wait for response then prompt:** *How is it implemented? Do you think IQMS is effective in increasing teacher motivation?*

24. *Are class visits carried out at the school?*
    - ⇨ **Wait for response then prompt:** *What is the attitude of teachers towards class visits? Do they support them or are they sceptical about them?*

25. *What happens after IQMS has been completed during a cycle?*
    - ⇨ **Wait for response then prompt:** *Are there instances where teachers sit together with their HODs and discuss strengths and weakness of the lessons presented? Is there a follow-up to address gaps in the teacher's teaching skills or knowledge?*

26. *When there is a teacher vacancy at the school what steps do you take to ensure the vacancy is filled?*
    - ⇨ **Wait for response then prompt:** *What role do teacher unions play in the filling of posts? What happens when there are disputes? How does the school ensure that the qualified candidate gets the post?*

27. *Generally, are you satisfied with the level of support you receive from the District, if any?*

28. *How big is your school in terms of learner and teacher numbers?*

29. *What is the smallest and highest grade in this school?*

30. *At what time does your school start and end?*

31. *May you tell me about the following personal details:*

Your teaching qualification/s	
Your teaching experience	

Thank you very much for your participation in this study!

Tool A3-6: Teacher Interview Guide

- *Read the Consent Form to the respondent and ask him/her to sign it. Stress in particular that though everything that the respondent answers is taken very seriously and will report on it, his/her response is completely anonymous and confidential.*
- *Also ask the respondent for permission to record the interview and state that this is for the purpose of assisting in capturing his/her responses. If the respondent feels uncomfortable about being recorded you must proceed with the interview without the recording device.*
- *The study is part of a research project on how instructional management is carried out in primary schools to ensure accountability in the system. This study is undertaken by the Department of Economics at the University of Stellenbosch and is financially supported by the Programme to Support Pro-Poor Policy Development (PSPPD), a partnership programme between the Presidency and the European Union.*

Name and surname of the respondent:

……

School of the respondent:

……

Before you begin the interview give the principal an extract below for him/her to read for few minutes:

Mrs Banayi is a principal of Loko Junior Primary school and has just assumed her current post this year. The school is situated in a rural area and the number of learners is small (52) because parents are taking their children to urban schools. In the last post establishment three (3) teaching posts have been declaredas excess in the school and the teacher morale is low as a result of this. When she arrived at the school she found that things were not right. Most teachers and learners were coming late to school; there was a high rate of absenteeism among teachers and learners especially on Mondays and Fridays. For the past three years the pupils at almost all grades have been performing badly on the Annual National Assessments (ANAs). And the school has been characterised by existence of conflicts among teachers for some time now. Also almost all teachers are residing about 30 – 50 km from the school and teachers use lift clubs to come to school. Teachers at the school belong to a very strong teacher union that protects their conditions of service. During days when there are union meetings the school breaks off at about 10am. Also sometimes when most teachers have to attend workshops and meetings organised by Department of Basic Education the school has to break early to allow teachers to attend.

32. *What do you think Mrs Banayi, the principal, should do to curb teacher and learner absenteeism?*

33. *Is there anything that can be done to increase punctuality at school by both teachers and learners?*

34. *How would you describe the state of your school in terms of punctuality and attendance by teachers and learners?*

35. *What happens to teachers who do not attend school without valid reason?*
    - ⇨ **Wait for response then prompt:** *Is there a form of punishment meted against such teachers? If not, why not?*

36. *What motivated you to become a teacher?*
    - ⇨ ***Wait for response then prompt:*** *Are you still motivated to teach? Why or why not?*

37. *How confident are you in teaching your subject to pupils? (Ask the teacher to state the subject(s) s/he teaches).*
    - ⇨ ***Wait for response then prompt:*** *Do you think you are competent in the subject you are teaching? What makes you say that?*

38. *In your opinion what distinguishes a good teacher from a bad teacher? What are the characteristics of a good teacher?*
    - ⇨ **Wait for response then prompt:** *How would you compare yourself as a teacher in comparison to other teachers in your district?*

39. *Would you support a policy that required that teachers write a test to assess their content knowledge once in a three year cycle? Why or why not?*

40. *How often are you absent from school in a month?*
    - ⇨ ***Wait for response then prompt:*** *What are some of the reasons for your absence? And what happens to your class during your absence?*

41. *How do you plan your teaching and assessment?*
    - ⇨ **Wait for response then prompt:** *Do you have a year plan? Is this monitored by your Head of Department or Principal, and if so in what way and how often?*

42. *How much time do you devote to reading in your class?*
    - ⇨ **Wait for response then prompt:** *How do you assess reading skills of students?*

43. *Does learner performance in tests and examinations impact on your teaching plans? Can you elaborate on this?*

44. *What do you usually do with the Annual National Assessment (ANA) results after you receive them from the Principal?*
    - ⇨ **Wait for response then prompt:** *Do you use the results to diagnose the topics in which students are faring poorly? Does your HOD or principal ever discuss your class ANA results with you?*

45. *Are there disputes or conflicts among staff members at your school?*
    - ⇨ **Wait for response then prompt:** *If yes, do such conflicts have an effect on teaching and learning?*

46. *Do you belong to a teachers' union?*
    - ⇨ **Wait for response then prompt:** *If yes what union is it? Do you think your union brings value to teaching and learning? Elaborate.*

47. *How often do you have to attend union activities such as general meetings or workshops?*
    - ⇨ **Wait for response then prompt:** *Do all members of your union at your school attend a general meeting when there is one? What time of the day do union activities usually take place – during school hours or after school hours?*

48. *How often do you have to attend activities organised by the Department of Education such as meetings or workshops?*
    - ⇨ ***Wait for response then prompt:*** *What kind of activities are these? What time of the day do these activities take place – during school hours or after school hours?*

49. *Do you usually receive support from your subject advisors?*
    - ⇨ **Wait for response then prompt:** *What type of support do you receive?*

50. *Do you think teachers should be rewarded for their professional competence?*
    - ⇨ **Wait for response then prompt:** *If so, how do you think this should be done?*

51. *Is Integrated Quality Management System (IQMS) implemented at your school?*
    - ⇨ **Wait for response then prompt:** *How is it implemented? Do you think IQMS is effective in increasing teacher motivation? What is your opinion of the IQMS system? How do you think it could be improved?*

52. *Do you think there is a need for your HOD or principal to visit you in your classroom and monitor the way you teach?*
    - ⇨ **Wait for response then prompt:** *Why or why not?*

53. *What happens after IQMS has been completed during a cycle?*
    - ⇨ **Wait for response then prompt:** *Are there instances where you sit together with your HOD and discuss strengths and weakness off the lesson presented? Is there a follow-up to address gaps in your teaching skills or knowledge?*

54. *How many learners do you teach? How many classes do you teach and what are the sizes of these classes?*

55. *May you tell me about the following personal details:*

Your teaching qualification/s	
Your teaching experience	

Thank you very much for your participation in this study!

Appendix 3B: Letter requesting permission to conduct research

Research on Socio-Economic Policy Department of Economics University of Stellenbosch
Tel: 021 808 2024

30 June 2015

Mr Raymond Tywakadi
Acting Superintendent General
Eastern Cape Department of Education
Steve Vukile Tshwete Complex,
Zone 6, Zwelitsha, King William's Town, Eastern Cape

Dear Mr Tywakadi

RE: REQUEST FOR PERMISSION TO CONDUCT FIELDWORK INTERVIEWS IN EASTERN CAPE SCHOOLS

On behalf of Prof van der Berg at the University of Stellenbosch, we request the support of Eastern Cape Department of Education to conduct interviews with school principals and teachers in 15 schools. The 15 schools are located across three districts: East London, King William's Town and Fort Beaufort. The aim of the interviews is to investigate to what extent school management teams are engaged in instructional leadership activities, enabling accountability within the system while understanding how this is perceived by teachers.

It is proposed that these interviews will take place in the third school term. School visits will be arranged so as not to interfere with teaching time. The interviews will be conducted by a PhD candidate at the Stellenbosch University, economics department.

A formal letter on this research project has been sent to the Acting DG, Mr Padayachee. We have also been in contact with the DBE's Directorate, Research coordination, Monitoring and Evaluation and Chief Directorate, Strategic Planning Research and Coordination who are supporting the work.

Thanking you in anticipation for your

support. Yours sincerely,

Dumisani Hompashe

Appendix 3C: Letter of support for the study

THE PRESIDENCY: REPUBLIC OF SOUTH AFRICA

24 June 2015

To whom it may concern

RE: Research to be conducted by Research on Socio-Economic Policy (ReSEP), Stellenbosch University

The Programme to Support Pro-poor Policy Development (PSPPD) is a research and capacity building programme in the Presidency. The PSPPD promotes the use of research and other evidence in policy interventions which address poverty and inequality. The PSPPD Phase II focuses on consolidating an approach to policy- making that is more evidence-based, i.e. assisting policy-makers and researchers in systematically harnessing the best available evidence to inform the policy-making process. The PSPPD II has three components :(i) research, (ii) capacity building; and (iii) stakeholder engagement.

As part of the research component, the PSPPD runs a research grants process. A project to be conducted by Research on Socio-Economic Policy (ReSEP), Stellenbosch University, represented by Prof van der Berg, is one of the recipients of a grant from the PSPPD. The title of the research being undertaken is 'Binding constraints in education'. We hereby request, on behalf of Prof van der Berg, for your support in assisting ReSEP meet the objectives of their project.

Your cooperation is much appreciated

Yours sincerely

Ms Mastoera Sadan Programme Manager,
PSPPD
The Presidency, Republic of South Africa

Appendix 3D: Ethical clearance

Approval with stipulations

New Application

30-Jul-2015
Van Der Berg, Servaas S

Proposal #: DESC/VanderBerg/Jul2015/3

Title: Research on Socio-Economic Policy (ReSEP)

Dear Prof Servaas Van Der Berg,

Your **New Application** received on **22-Jul-2015**, was reviewed

Please note the following information about your approved research proposal:

Proposal Approval Period: **24-Jul-2015 -23-Jul-2016**

The following stipulations are relevant to the approval of your project and must be adhered to:
The research teams should preferably use the SU template for informed consent (alternative template available on the REC website is suitable for this project). The current informed consent form is missing required elements including information regarding the payment of participants, as well as the associated risks and benefits of participation. The SU logo must be included in the informed consent form.

Please provide a letter of response to all the points raised IN ADDITION to HIGHLIGHTING or using the TRACK CHANGES function to indicate ALL the corrections/amendments of ALL DOCUMENTS clearly in order to allow rapid scrutiny and appraisal.
Please take note of the general Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

Please remember to use your **proposal number** (**DESC/VanderBerg/Jul2015/3**) on any documents or correspondence with the REC concerning your research proposal.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Also note that a progress report should be submitted to the Committee before the approval period has expired if a continuation is required. The Committee will then consider the continuation of the project for a further year (if necessary).

This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki and the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health). Annually a number of projects may be selected randomly for an external audit.

National Health Research Ethics Committee (NHREC)

registration number REC-050411-032. We wish you the

best as you conduct your research.

If you have any questions or need further help, please contact the REC office at 218089183.

Included Documents

Research Proposal Informed consent form DESC Checklist form

Sincerely

Clarissa Graham
REC Coordinator
Research Ethics Committee: Human Research (Humanities)

Appendix 3E: Tables

Table 3-1: Variables used in estimation of SES index and weights

Variable	Asset ownership	Grade 5 weights	Grade 9 weights
Cell phone	Yes	0.818	0.446
	No	-1.148	-1.898
Computer or tablet	Yes	1.533	1.536
	No	-0.657	-0.731
Shared computer or tablet	Yes	1.069	0.936
	No	-0.822	-0.717
Internet connection	Yes	1.599	1.024
	No	-0.866	-1.293
Gaming system	Yes	1.485	1.560
	No	-0.945	-0.731
Own room	Yes	1.018	0.595
	No	-1.101	-1.309
Study desk	Yes	0.839	0.652
	No	-1.174	-1.050
Electricity	Yes	0.419	0.334
	No	-2.233	-3.472
Running tap water	Yes	0.711	0.647
	No	-1.291	-1.899
Television	Yes	0.354	0.350
	No	-2.840	-3.847
Dictionary	Yes	0.716	0.499
	No	-1.476	-1.911
Number of books	More than 25 books	1.601	1.182
	0-25 books	0.412	-0.309
Number of devices	More than 3 devices	1.396	1.114
	0-3 devices	0.483	-1.239

Table 3-2: Sociodemographic characteristics of total sample in percentage

	Grade 5	Grade 9
Principal-reported teachers' understanding of curricular goals	**N=10705**	**N=12475**
Very high	23.2	16.3
High	56.1	60.0
Medium	19.8	28.7
Low	0.9	2.0
Teacher-reported teachers' understanding of curricular goals	**N=10583**	**N=12206**
Very high	24.9	29.4
High	58.1	54.0
Medium	16.3	15.3
Low	0.7	1.3
Principal-reported teachers' degree of success in implementing curriculum	**N=10663**	**N=12434**
Very high	13.6	11.8
High	48.3	41.2
Medium	36.4	43.7
Low	1.6	2.9
Very low	0.1	0.4
Teacher-reported teachers' degree of success in implementing curriculum	**N=10337**	**N=12173**
Very high	22.9	19.9
High	54.5	51.6
Medium	22.5	26.4
Low	0.1	2.1
Principal-reported teachers' absence from school	**N=10626**	**N=12441**
Not a problem	31.7	25.7
Minor problem	51.8	47.2
Moderate problem	13.9	21.8
Serious problem	2.6	5.3
Principal-reported teachers' late arrival at school	**N=10626**	**N=12513**
Not a problem	47.6	35.4
Minor problem	41.9	46.7
Moderate problem	9.4	13.6
Serious problem	1.1	4.3
Frequency of Mathematics homework assigned	**N=9324**	**N=12039**
No homework	2.4	2.2
Everyday	37.5	56.7
3 or 4 times a week	32.0	31.5
1 or 2 times a week	22.2	9.1
Less than once a week	5.9	0.5
Teacher-reported satisfaction with being a teacher	**N=10645**	**N=12234**
Very often	61.6	39.8

Often	22.6	34.0
Sometimes	13.3	23.2
Never or almost never	2.6	3.0
Students who speak English at home	**N=10781**	**N=12416**
Always	20.5	21.0
Almost always	10.4	14.0
Sometimes	56.8	60.0
Never	12.3	5.0
Student gender	**N=10918**	**N=12506**
Girl	48.8	51.3
Boy	51.2	48.6
Students taught by teachers per teachers' gender (n=12310/12514)	**N=10640**	**N=12310**
Female	63.4	44.6
Male	36.6	53.8
Total experience of the principal (n=11555/12514)	**N=9781**	**N=11555**
0 to 5 years	32.7	39.6
6 to 15 years	40.0	28.1
More than 15 years	27.3	24.6
Total experience of the principal at present school (n=11424/12514)	**N=9770**	**N=11424**
0 to 5 years	40.1	46.8
6 to 15 years	38.3	25.9
More than 15 years	21.7	18.6
Students taught by teachers per teachers' age categories	**N10640**	**N=12383**
Under 25 years	3.1	5.3
25 to 29 years	6.9	17.7
30 to 39 years	13.7	24.0
40 to 49 years	48.0	34.2
50 to 59 years	25.4	15.5
60 years or more	2.9	2.2
Principal qualification	**N=10393**	**N=12153**
Did not complete Bachelor's or equivalent	22.7	7.1
Bachelor's or equivalent	66.2	77.6
Master's or equivalent	10.1	10.7
Doctor or equivalent	1.0	1.7